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**DRAFT REPORT**

**VOLUME II**

**DRAFT  
PILOT TEST REPORT**

**INSTALLATION OF AIR SPARGING AND SOIL  
VAPOR EXTRACTION SYSTEMS AT SITES  
SS-06, SS-08 & ST-40**

**WURTSMITH AIR FORCE BASE  
OSCODA, MICHIGAN**

**CONTRACT No. F41624-94-D-8066  
DELIVERY ORDER 0007**

**March 16, 1998**



**PREPARED FOR:  
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
BROOKS AFB, TEXAS**

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**DRAFT**

**PILOT TEST REPORT**

**FOR**

**INSTALLATION OF AIR SPARGING AND**

**SOIL VAPOR EXTRACTION SYSTEMS**

**AT SITES SS-06 AND SS-08**

**WURTSMITH AIR FORCE BASE**  
**OSCODA, MICHIGAN**

**Contract No. F41624-94-D-8066**  
**Delivery Order 0007**

**VOLUME II - APPENDICES**

**March 16, 1998**

**Prepared for:**

**Air Force Center for Environmental Excellence**  
**Brooks Air Force Base, Texas**

**Prepared By:**

**AmTech Engineering, Inc.**  
**4343 Saguaro Trail**  
**Indianapolis, Indiana 46268**

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**APPENDIX A**  
**SOIL BORING LOGS AND WELL CONSTRUCTION DIAGRAMS**





# Metcalf & Eddy

2800 CORPORATE EXCHANGE DRIVE  
SUITE 250  
COLUMBUS, OHIO 43231

PHONE: (614) 890-5501  
FAX: 890-7421

Location: 5 feet West of VE1

Logged By: B Chavez

Date(s): 10/27/97 - 10/27/97

Consulting Firm: Amtech/ M&E

Contractor: American Enviro.

Drilling Method: Hollow Stem Auger

Completed Depth: 43.00'

X Coordinate: 2254665.00

Y Coordinate: 414935.49

Project Name: WURTSMITH AFB

Site Id: SS06-S1

Total Depth: 43.00'

Borehole Dia.: 6.00in

Remarks: Driller: Ron Mathes  
Type of sampler: Splitspoon  
Drilling Equipment: CME 75  
Site ID: SS06

Elevation (ft)	Depth (ft)	Recovery	Blow Count	Graphic Log	Material Description	MP. EL. 615.08
610	2 3 4 5		2 3 4 5		(0-5') Sand (SM) Silty Sand 51R2.5/2 dark reddish brown, 10% clay, low density, low to medium density, low to medium plasticity, moist.	
	6-7				(6-7') Sand (SP) 10 YR5/4 yellowish brown, poorly graded, v fine grained, low density, trace med grained subangular sand, moist.	
	2-4				(2-4) SAME AS ABOVE INTERVAL 6-7, SOME BLACK DISCOLORATION.	
	4-6				(4-6) SAME AS ABOVE MATERIAL.	
	6-8				(6-8) SAME AS ABOVE MATERIAL, 10YR light yellowish brown, poorly graded.	
	8-10				(8-10) SAME AS ABOVE MATERIAL.	
	10-10.5				(10-10.5) SAME AS ABOVE MATERIAL, 10YR4/3 brown.	
	10.5-12				(10.5-12) Same as interval 8-10.	
	12-14				(12-14) Same as above material, 10YR5/3 pale brown, dark brown staining, trace subrounded to rounded pebbles, 5mm dia.	
	14-16				(14-16) SAME AS ABOVE MATERIAL, no staining.	
	16-18				(16-18) SAME AS ABOVE MATERIAL, subangular to angular, trace of inst cobble.	
	18-20				(18-20) SAME AS ABOVE MATERIAL, no cobble fragments.	
	20-25					
	25-33					
	33-38					
	38-43					
	43-48					
	48-53					
	53-58					
	58-63					

Elevation (ft)	Depth (ft)	Recovery	Blow Count	Graphic Log	Material Description	Well Construction
			6 10 23 34			
			5 8 16 20		(20-22) Sand (SP) 10YR6/3 pale brown, trace subrounded to rounded pebbles, 10mm dia, poorly graded, moist.	
					(22-24) SAME AS ABOVE MATERIAL, moist to wet.	
590			6 8 12 20		(24-26) SAME AS ABOVE MATERIAL, dark brown discoloration at 24-25, saturated.	
			6 6 11 21		(26-28) SAME AS ABOVE MATERIAL, no discoloration, few rounded pebbles.	
	28				(28-30) SAME AS ABOVE MATERIAL, 10YR5/2 grayish brown.	
			6 9 20 29		(30-32) SAME AS ABOVE MATERIAL.	
			8 11 16 40		(32-34) SAME AS ABOVE MATERIAL.	
580			7 12 19 26		(34-36) SAME AS ABOVE MATERIAL.	
			6 10 31 39		(36-38) SAME AS ABOVE MATERIAL.	
	38				(38-40) SAME AS ABOVE MATERIAL.	
					(40-42) SAME AS ABOVE MATERIAL.	
					DRILLED 1" TO TOTAL DEPTH OF 43 FEET.	
570					SCREENED INTERVAL 40.5-43'	



# Metcalfe & Eddy

2800 CORPORATE EXCHANGE DRIVE  
SUITE 250  
COLUMBUS, OHIO 43231

PHONE: (614) 890-5501  
FAX: 890-7421

Location: 5 feet South of VE1/MP6

Logged By: B Chavez

Date(s): 11/11/97 - 11/11/97

Consulting Firm: Amtech/ M&E

Contractor: American Enviro.

Drilling Method: Hollow Stem Auger

Completed Depth: 35.00'

X Coordinate: 2250428.62

Y Coordinate: 415589.83

Project Name: WURTSMITH AFB

Site Id: SS08B-S1

Total Depth: 35.50'

Borehole Dia.: 14.00in

Remarks: Driller: Ron Mathes  
Type of Sampler: Splitspoon  
Drilling Equipment: CME 75  
Site ID: SS08B

Elevation (ft)	Depth (ft)	Recovery	Blow Count	Graphic Log	Material Description	MP. EL. 620.52
610	5		5		(1-3) Sand (SP) 10YR5/4 yellowish brown, poorly graded, low density, loose, low plasticity, trace of pebbles, v fine grained, moist.	
	4		4		(3-5) SAME AS ABOVE MATERIAL, trace of rootlets.	
	3		3			
	2		2		(5-7) Sand (SP) 10YR5/4 yellowish brown, few fines at 7'. moist.	
	1		1			
	1		1			
	2		2		(7-9) Sand (SP) 10YR6/3 pale brown, poorly graded, low density, low plasticity, v fine grained.	
	3		3			
	4		4		(9-11) SAME AS ABOVE MATERIAL, moist.	
	6		6			
	10		10		(11-13) SAME AS ABOVE MATERIAL, moist.	
	5		5			
	5		5		(13-15) SAME AS ABOVE MATERIAL, 10YR6/4 light yellowish brown, wet at 15'.	
	3		3			
	4		4		(15-17) SAME AS ABOVE MATERIAL, 10YR5/3 brown, saturated.	
	6		6			
	10		10			
	16		16		(17-19) SAME AS ABOVE MATERIAL, some rounded and subangular pebbles and fine grained sand.	
	2		2			
	6		6			
	11		11			

Elevation (ft)	Depth (ft)	Recovery	Blow Count	Graphic Log	Material Description	Well Construction
600			14		(19-20) SAME AS ABOVE MATERIAL.	
			3			
			5			
			8		(20-21) Sand (SW) fine sand, loose with fine sands, low to medium density, low plasticity, saturated.	
			8			
			2		(21-23) Sand (SW) fine to medium sand, subrounded, loose, low plasticity, wel.	
			5			
			6			
			10			
			2		(23-25) SAME AS ABOVE MATERIAL.	
			4			
			7			
			11		(25-27) HEAVE IN SPOON.	
			2			
			3			
			7			
			17		(27-29) SAME AS INTERVAL 21-23.	
			1			
			1			
590	28		6		(29-31) SAME AS ABOVE MATERIAL.	
			12			
			1			
			4			
			6		(31-33) NO RECOVERY.	
			13			
			1			
			1		(33-35) HEAVE IN SPOON.	
			6			
			12			
			1			
			3			
			6			
			11		END OF BORING AT 35.5'	
	38				SCREENED INTERVAL 32.5-35.0'	
580						

# BORING LOG

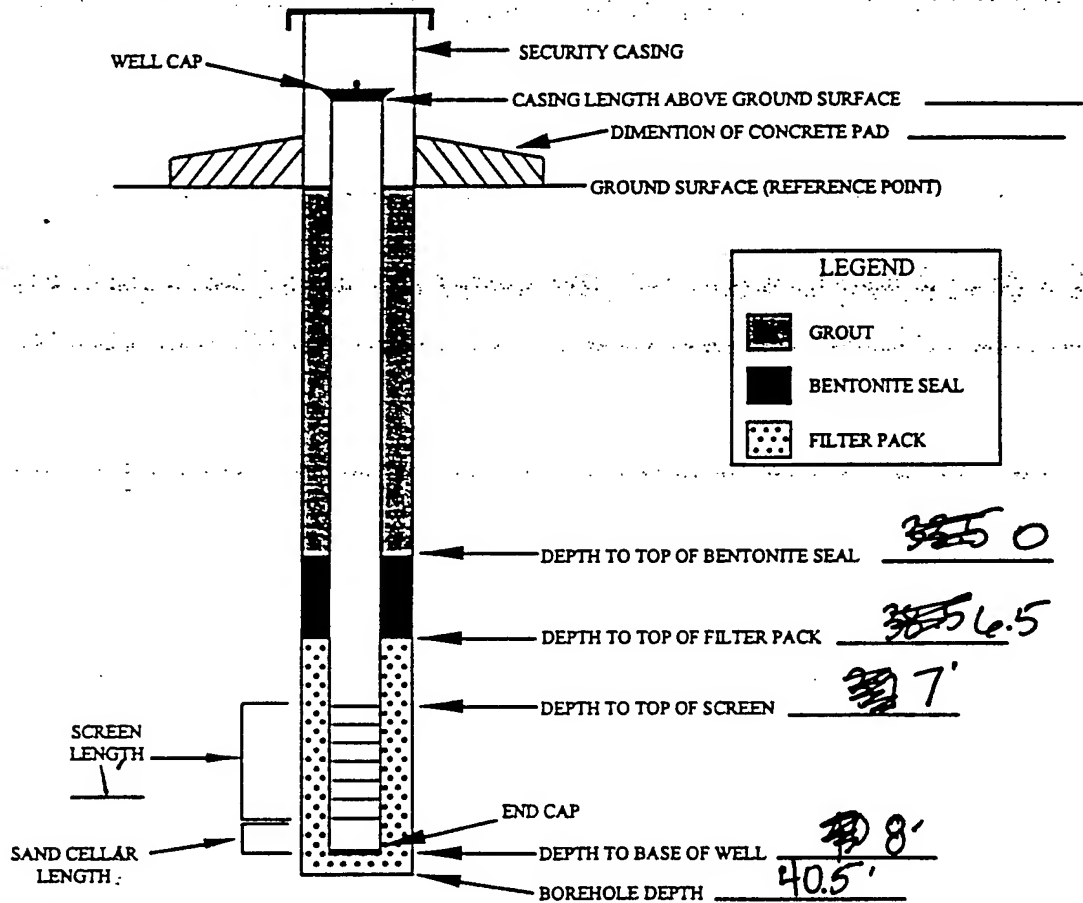
Borehole ID: SS06-MPI  
Sheet 1 of 1

Project Name <u>Pilot Test</u>				Project Number <u>021746</u>		LTCCODE (IRPIMS)		Location <u>5ft. South of SS06-VE1</u>	
Drilling Company <u>American Environmental</u>				Driller <u>Steve Sikora</u>		Ground Elevation		Site ID <u>SS06</u>	
Drilling Equipment <u>CME 75</u>				Drilling Method <u>HSA (9 1/4")</u>		Borehole Diameter <u>14"</u>		LPRCODE (IRPIMS)	
Type of Sampling Device <u>                    </u>				Date/Time Drilling Started <u>10/30/97 / 1400</u>		Date/Time Total Depth Reached <u>10/30/97 / 1510</u>		Total Drilled Depth <u>40.5 ft.</u>	
Sample Hammer Type <u>          </u> Driving Wt. <u>          </u> Drop <u>          </u>				Water Level (bgs) First <u>22'</u> Final <u>          </u>		Hydrogeologist <u>B. Chavez</u>		Checked by/Date	
Location Description (include sketch in field logbook)									
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)	
				(0-5) SAND(sp) 10yr 5/3 brown, low density, low plasticity, very fine grained, poorly graded, moist.				Ø	
				(5-10) Same as above material				Ø	
				(10-15) SAND(sp) 10yr 6/4 light yellowish brown. As above material				Ø	
				(15-20) SAND(sp) 10yr 5/3 brown. As above material.				Ø	
				(20-25) As above material.				767	
				(25-30) As above material.				986	
				(30-35) As above material.				>2000	
				(35-40) As above material.				>2000	
				end of boring 40.5'					

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 22  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold Chips  
 AUGER SIZE AND TYPE: 9/16" ID HSA AMOUNT BENTONITE USED: 35  
 BOREHOLE IDENTIFICATION: SS06-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 13" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP1A GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/6/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/6/97  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 7-8  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



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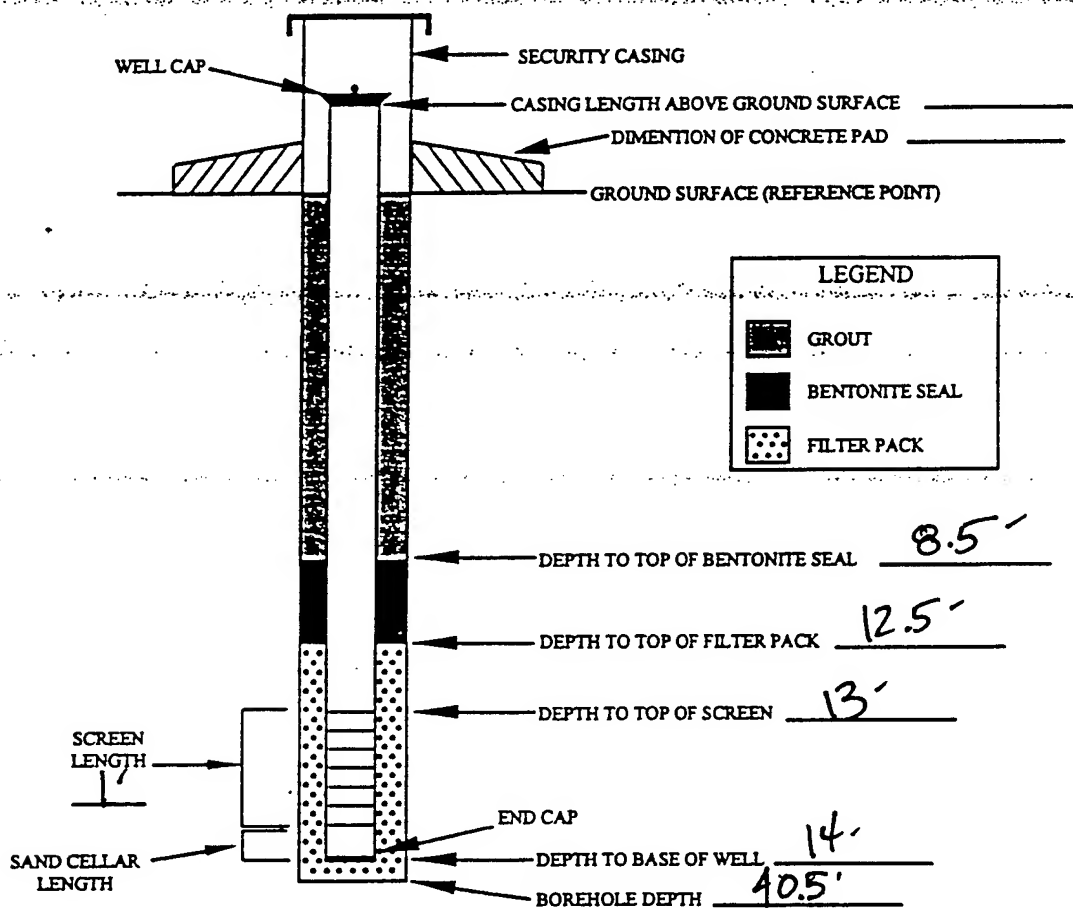
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 DISCREPANCIES: \_\_\_\_\_

SS06-MP1B

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 322  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 35  
 BOREHOLE IDENTIFICATION: SS06-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 13" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP1B GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/6/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/6/97  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3 1/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 13-14  
 CASING MATERIAL: PVC Schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
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 DISCREPANCIES: \_\_\_\_\_

SS06-MP1C

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: Global Silica SandDRILLING CONTRACTOR: American Environ.GRADATION: #5AMOUNT OF FILTER PACK USED: 22DRILLING TECHNIQUE: CME 75TYPE OF BENTONITE: Pure GoldAUGER SIZE AND TYPE: 9 1/4" ID HSAAMOUNT BENTONITE USED: 35BOREHOLE IDENTIFICATION: SS06-MP1

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 13"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS06-MP1C

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/6/97WELL CONSTRUCTION COMPLETE DATE: 11/6/97

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

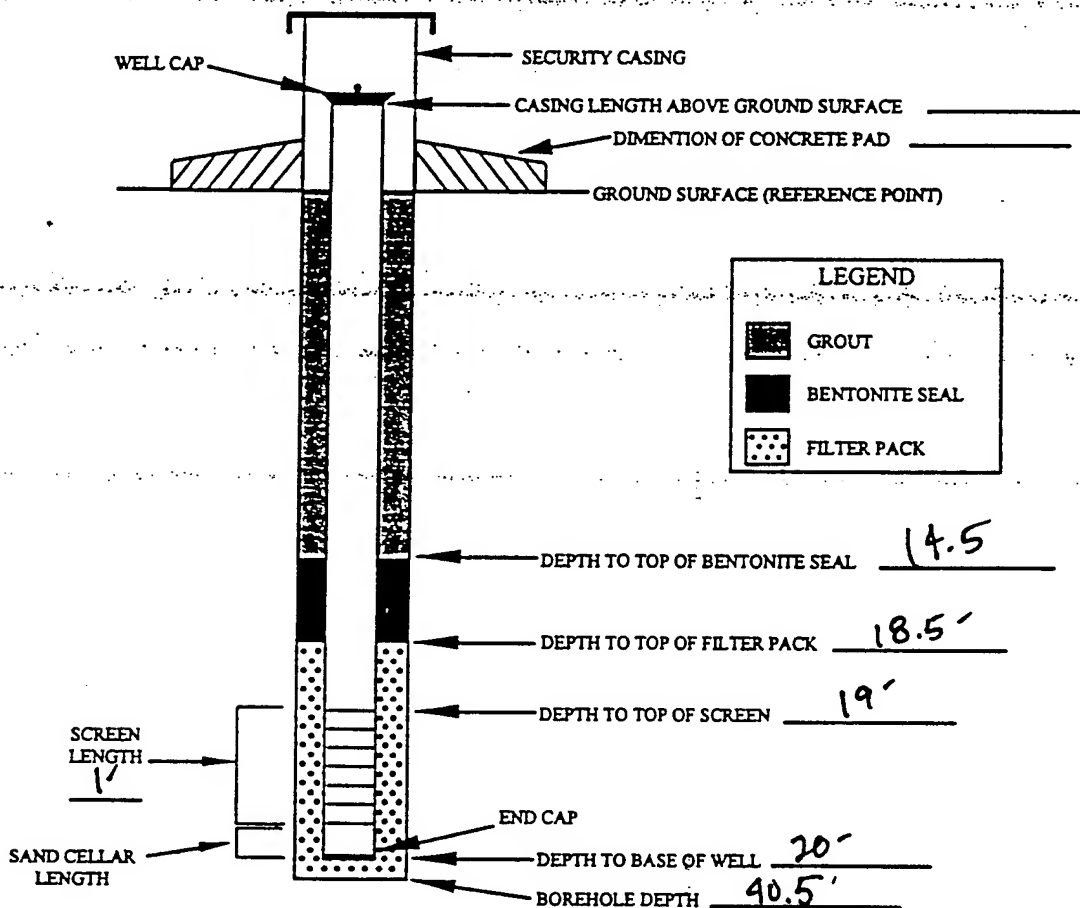
TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 19-20

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC Schedule 40CASING DIAMETER: 3/4"SPECIAL CONDITIONS  
(describe and draw)

NOT TO SCALE

INSTALLED BY: American EnvironmentalINSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

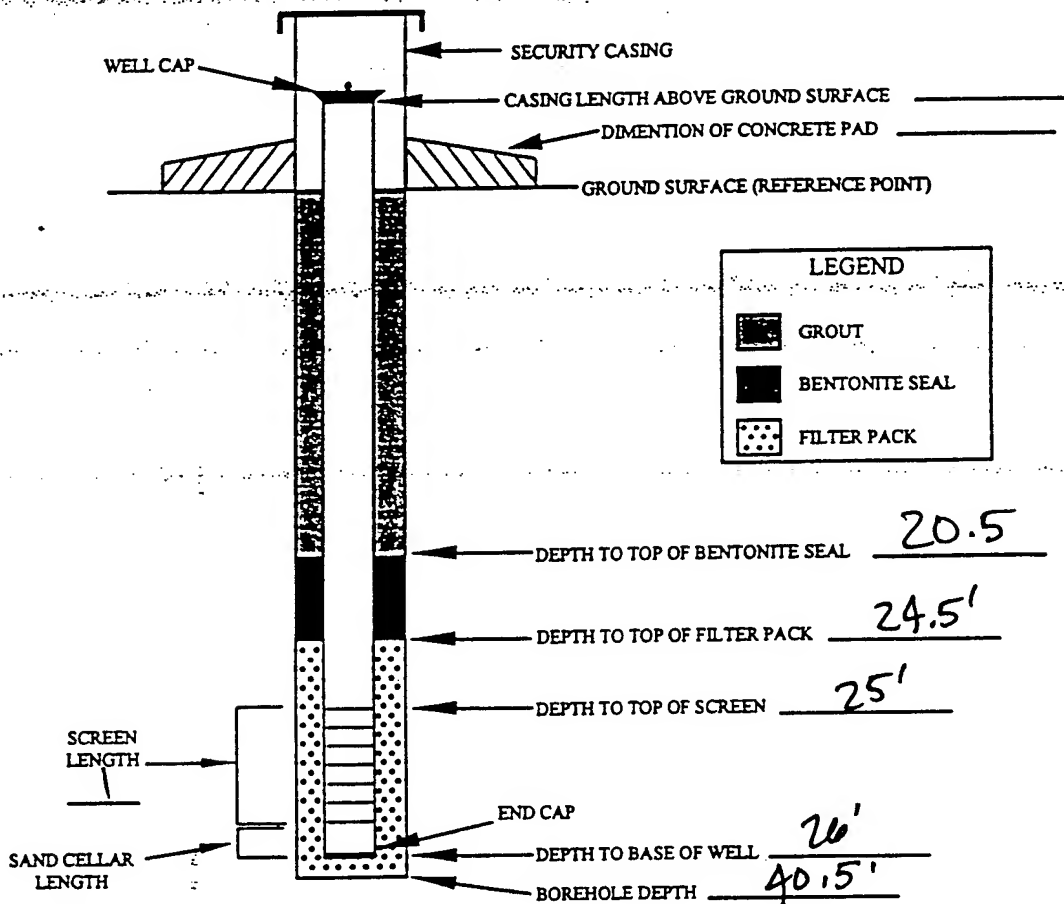


SS06-MP1D

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 22  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 35  
 BOREHOLE IDENTIFICATION: SS06-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 13" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP1A GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 25-26 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

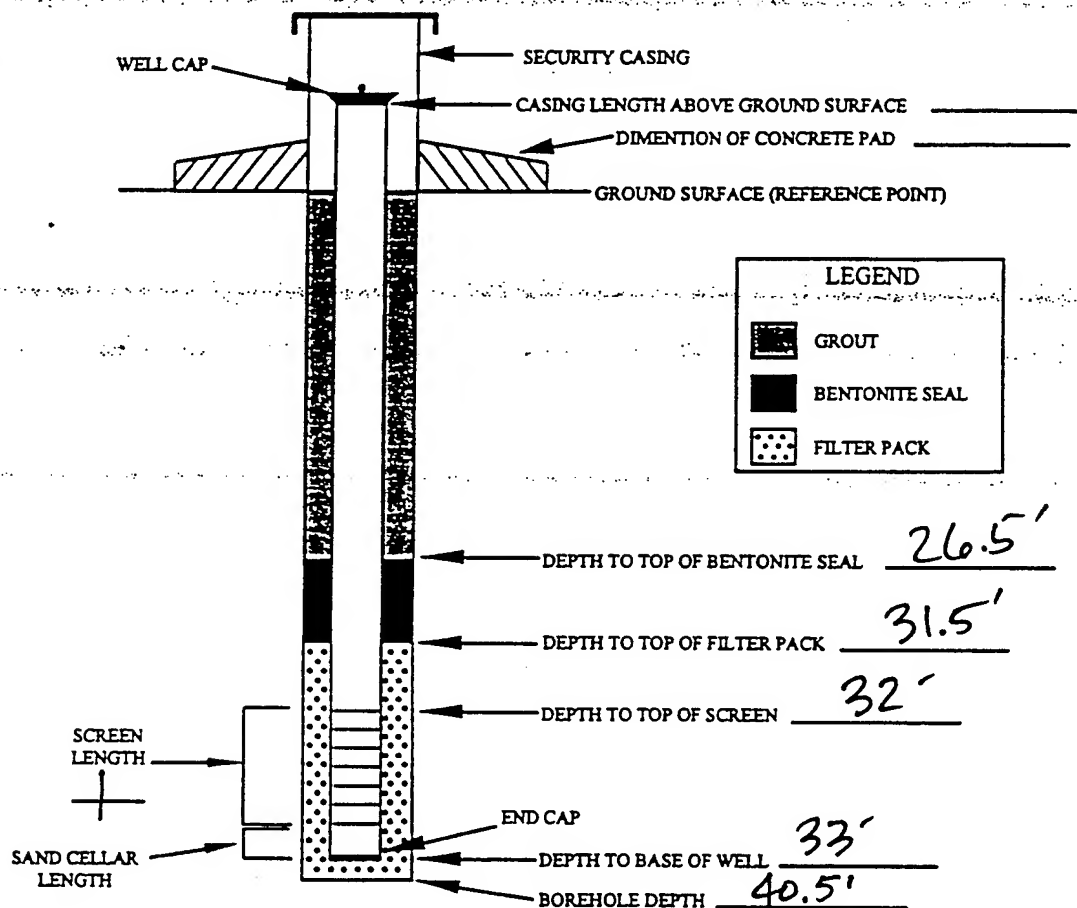
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalfe-Eddy (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS06-MP1E

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 22  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 35  
 BOREHOLE IDENTIFICATION: SS06-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 13" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP1E GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/6/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/6/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 32-33 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



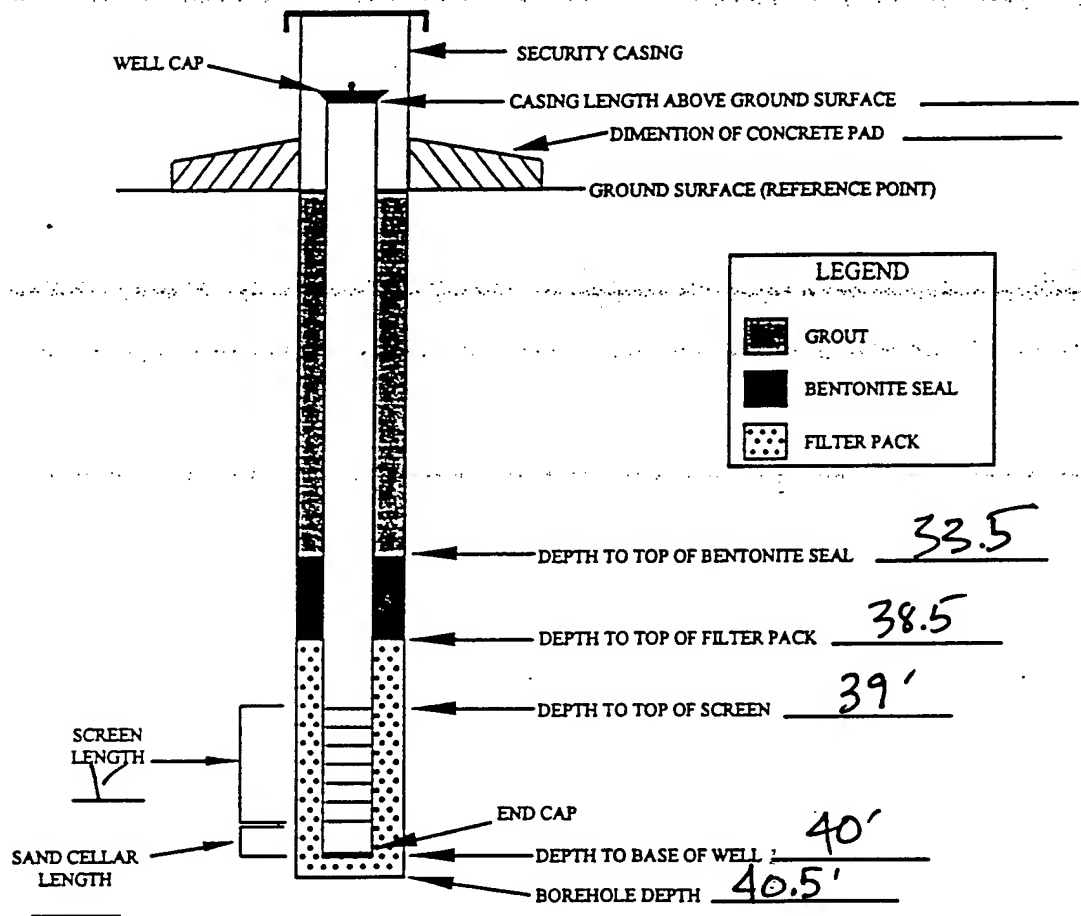
INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metal F. Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS06-MP1F

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environ. GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 22  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 35  
 BOREHOLE IDENTIFICATION: SS06-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 13" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP1F GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 39-40 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Melcast-Edy Inc.  
 DISCREPANCIES: \_\_\_\_\_

# BORING LOG

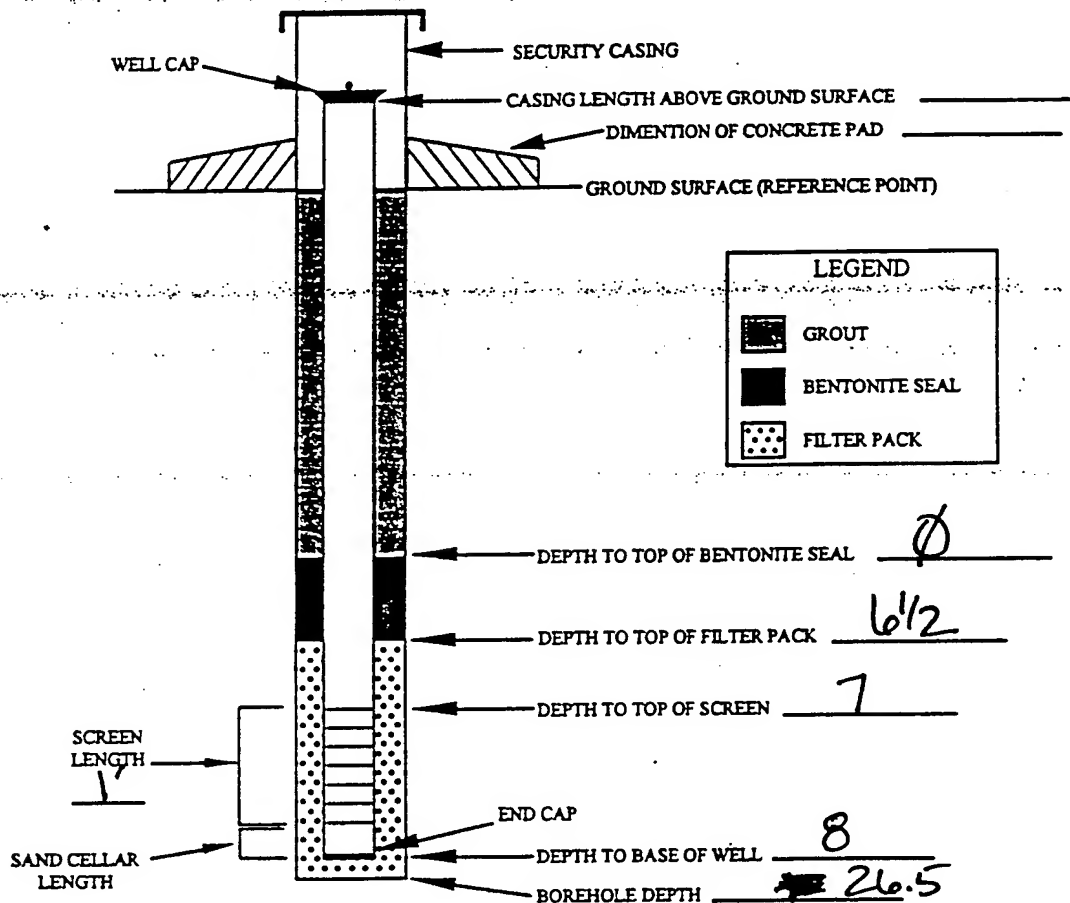
Borehole ID: SS06-MP2  
Sheet 1 of 1

Project Name <b>Pilot Test wells</b>				Project Number		LTCCODE (IRPIMS)		Location <b>10' NE of SS06 VE1/MP6</b>	
Drilling Company <b>American Environmental</b>				Driller <b>Ron Mathes</b>		Ground Elevation		Site ID <b>SS06</b>	
Drilling Equipment <b>CME15</b>				Drilling Method <b>9 1/4" 10 HSA</b>		Borehole Diameter <b>14"</b>		LPRCODE (IRPIMS)	
Type of Sampling Device <b>—</b>				Date/Time Drilling Started <b>11/6/97 1530</b>		Date/Time Total Depth Reached <b>11/6/97/17H 40.5</b>		Total Drilled Depth <b>40.5'</b>	
Sample Hammer				Water Level (bgs)		Hydrogeologist <b>B. Chavez</b>		Checked by/Date	
Type				Driving Wt.		Drop		Final	
Location Description (include sketch in field logbook)									
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)	
				(0-10) SAND (sp) 100% blk 100% ... low density, low plasticity, ... Very fine grained, trace ... medium			N		
				(10-20) 100% 5/12 tanish brown ... medium			M		>2000
				(20-30) Same as above material ... medium			M-W		72000
				(30-40) Same as above material ... medium			N-VI		>2000
logged from cuttings									

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 GRADATION: 45  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gd Chips  
 AUGER SIZE AND TYPE: 9 1/2 ID HSA AMOUNT BENTONITE USED: 7  
 BOREHOLE IDENTIFICATION: SS06-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP2A GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/6/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 7-8 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy INC (B. Chavez)

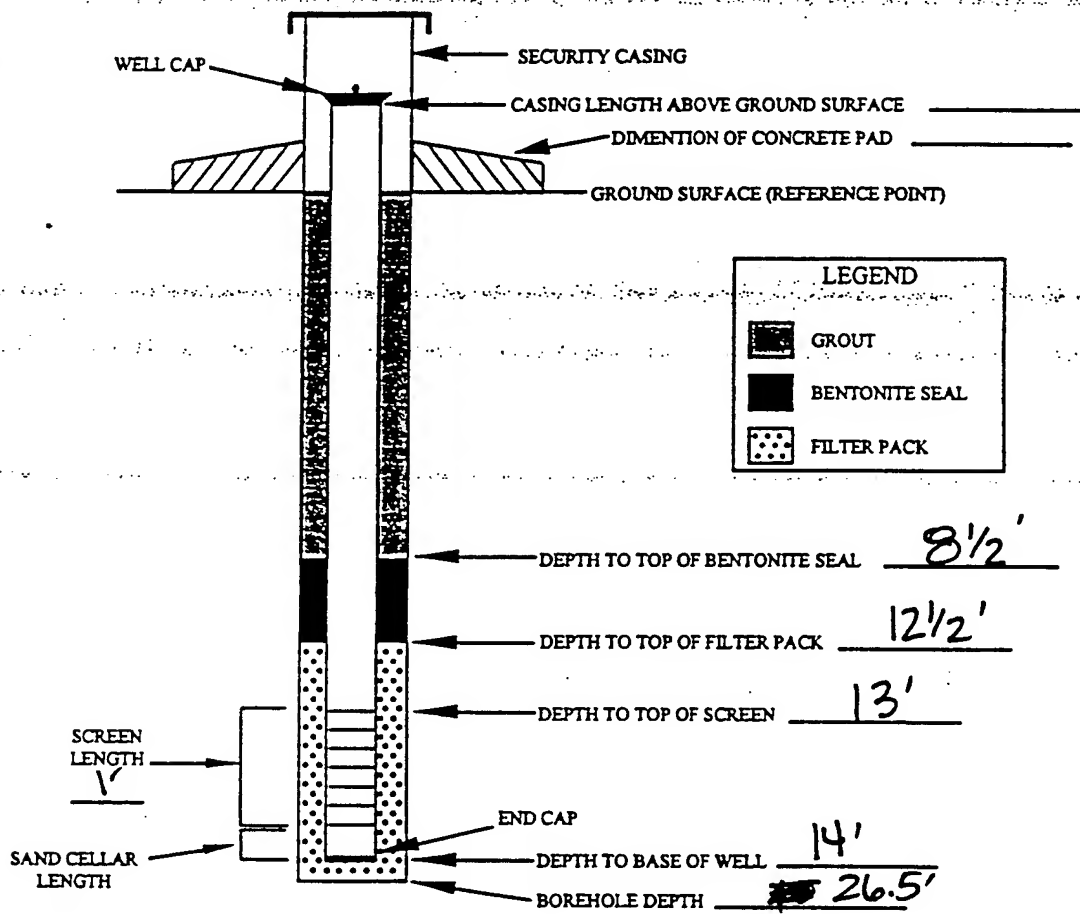
DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

5506-  
MP2B

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 5  
 AUGER SIZE AND TYPE: 9 1/4" HSA TYPE OF BENTONITE: Pure Gold  
 AMOUNT BENTONITE USED: 7  
 BOREHOLE IDENTIFICATION: 5506- MP2 TYPE OF CEMENT: ?  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: ?  
 WELL IDENTIFICATION: 5506- MP2B GROUT MATERIALS USED: ?  
 WELL CONSTRUCTION START DATE:             
 WELL CONSTRUCTION COMPLETE DATE:            DIMENSIONS OF SECURITY CASING:             
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP:             
 SCREEN DIAMETER: 9 1/4" TYPE OF END CAP:             
 STRATUM-SCREENED INTERVAL (FT): 13-14  
 CASING MATERIAL: PVC schedule 40 COMMENTS:             
 CASING DIAMETER: 9 1/4"

SPECIAL CONDITIONS  
(describe and draw)



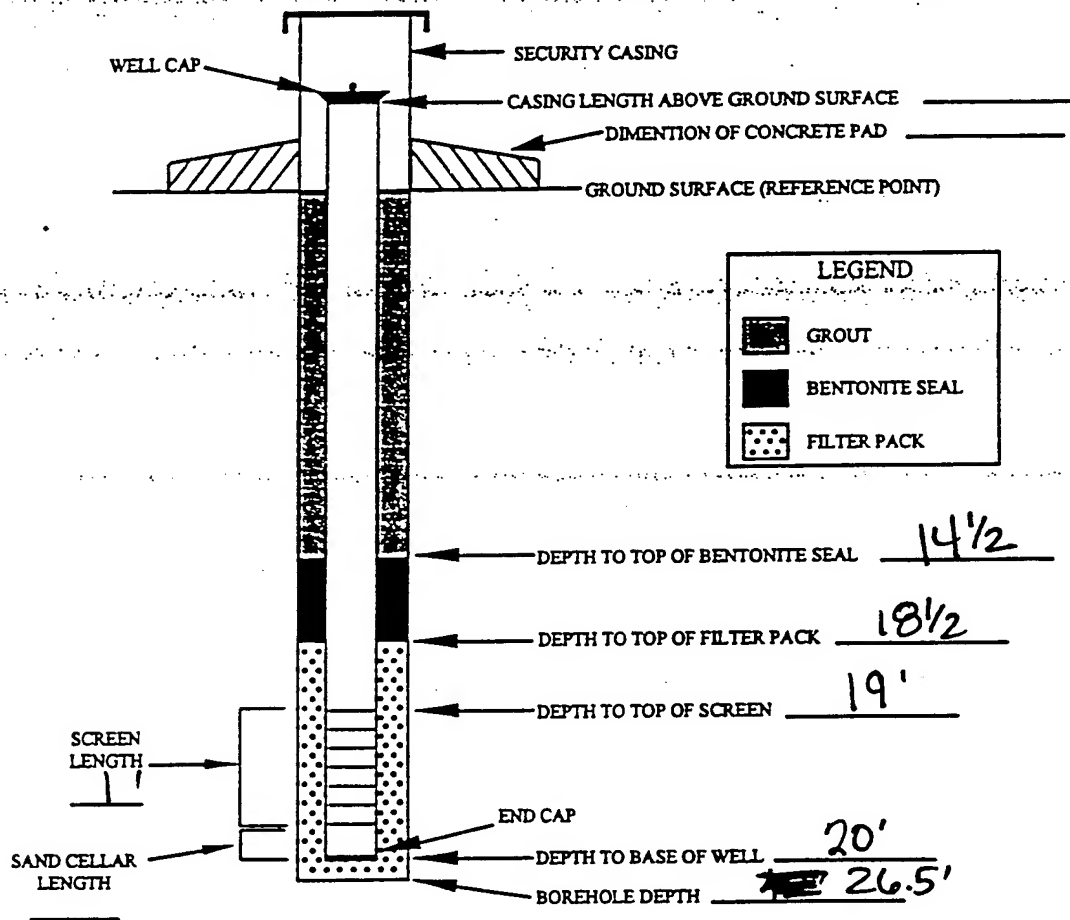
NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Melchior, Eddy (B. Chavez)  
 DISCREPANCIES:

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 3  
 AUGER SIZE AND TYPE: 9 1/4" 10 HSA TYPE OF BENTONITE: Pure Gold chips  
 AMOUNT BENTONITE USED: 6  
 BOREHOLE IDENTIFICATION: SS06-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP2C GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 19-20' COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)

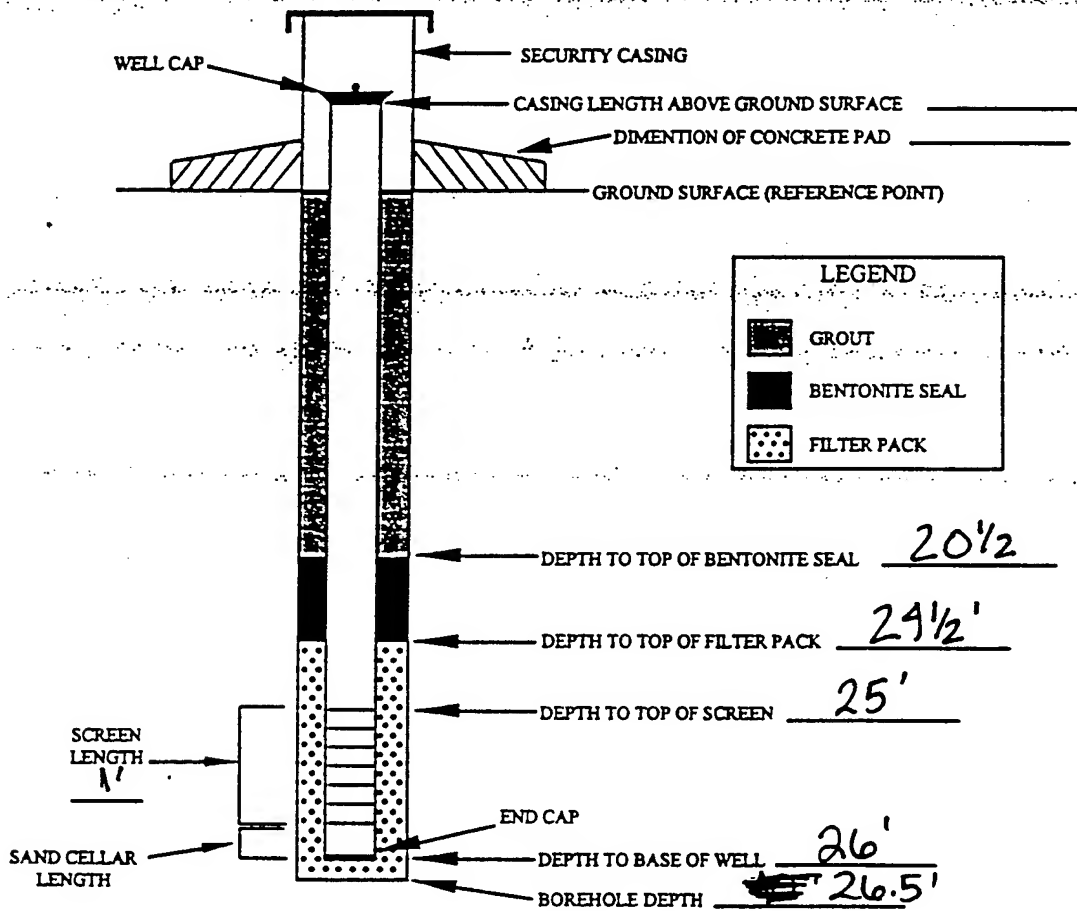


INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 6  
 BOREHOLE IDENTIFICATION: SS06-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP2D GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3 1/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 25-26  
 CASING MATERIAL: PVC Schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3 1/4"

SPECIAL CONDITIONS  
(describe and draw)



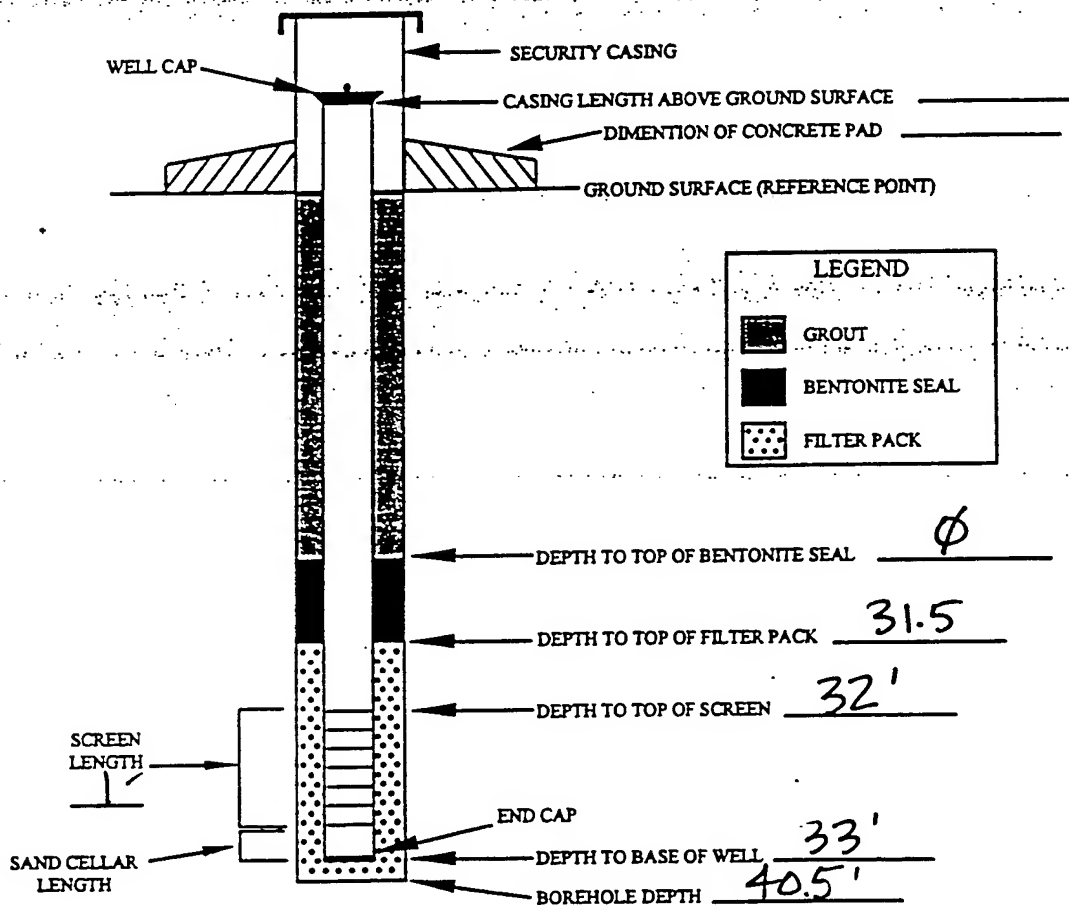
INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Melcalk, Paddy (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 3  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA TYPE OF BENTONITE: Pure Gold  
 AMOUNT BENTONITE USED: 56 bags  
 BOREHOLE IDENTIFICATION: SS06-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP2E GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 32-33 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



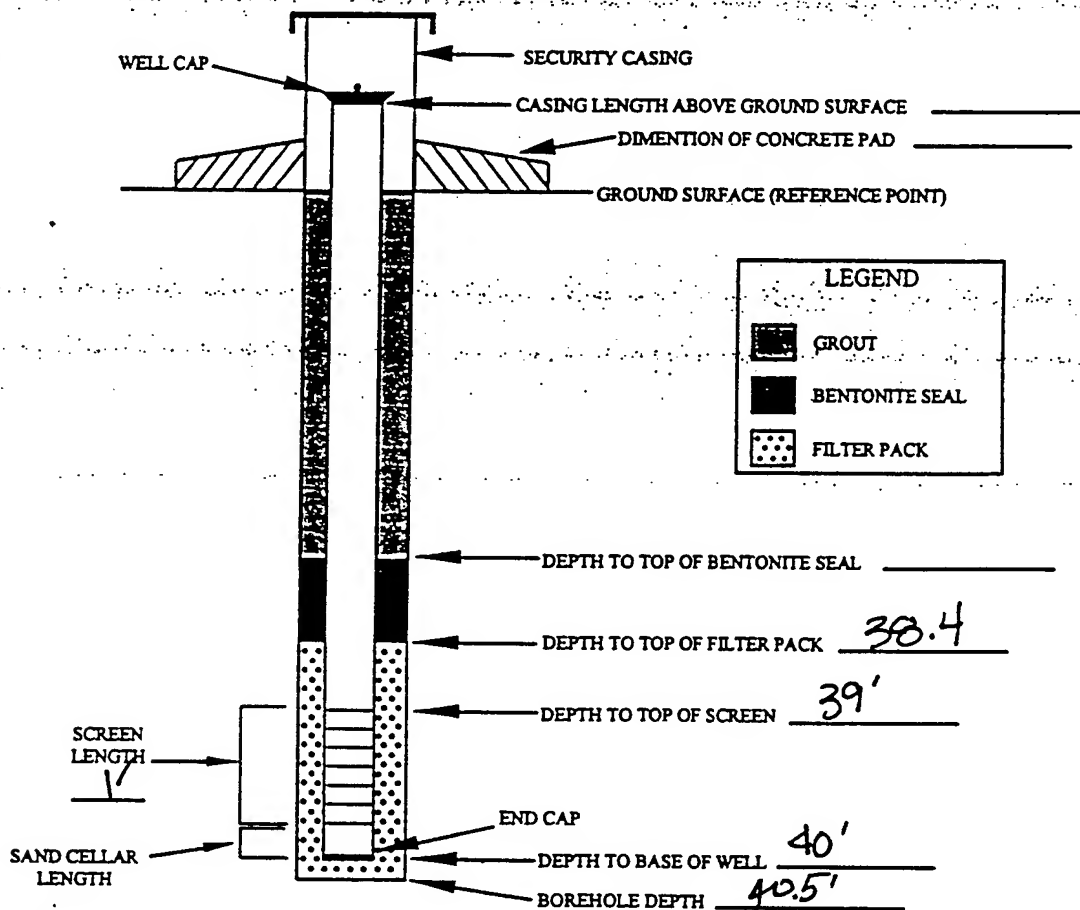
INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf & Eddy (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS06-MP2F

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 1 bag  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 6 bags  
 BOREHOLE IDENTIFICATION: SS06-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP2F GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 39-40  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf, Eddy (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: **SS06-MP3**  
Sheet **1** of **1**

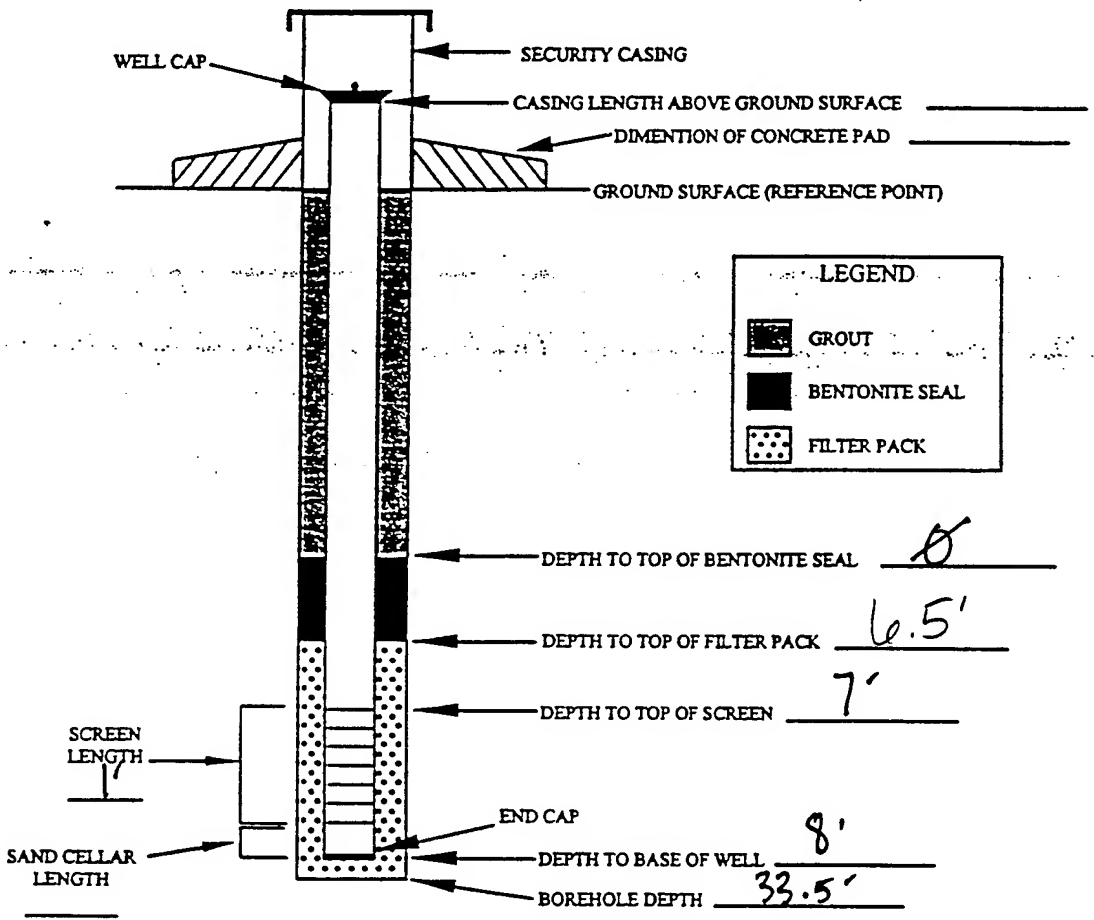
Project Name <b>Pilot Test Wells</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>15' NW of SS06 VE1</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathes</b>		Ground Elevation		Site ID <b>SS06</b>	
Drilling Equipment <b>CME 75</b>		Drilling Method <b>9 1/4" OHSA</b>		Borehole Diameter <b>14"</b>		Total Drilled Depth <b>33.5'</b>	
Type of Sampling Device —		Date/Time Drilling Started <b>11/8/97 1115</b>		Date/Time Total Depth Reached <b>11/8/97 1115</b>		<b>33.5'</b>	
Sample Hammer Type — Driving Wt. — Drop —		Water Level (bgs) First <b>22'</b>		Final			
Hydrogeologist <b>B. Chavez</b>		Checked by/Date					
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content
				(0-10) SAND(sp) 10/12 5/4 yellowish brown fine grained, low density, low plasticity, traces pebbles moist	sp	M	①
				(10-20) 10/12 6/4 light yellowish brown Same as above material	sp	M	22
				20-30 Same as above material	sp	M-W	72000
				30-33.5 Same as above material	sp	M-W	72000
				END OF BORING 33.5'			

5506-MP3A

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 3  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA TYPE OF BENTONITE: Pure Gold  
 AMOUNT BENTONITE USED: 12  
 BOREHOLE IDENTIFICATION: 5506-MP3 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: 5506-MP3A GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/8/97  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 14" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 7'-8" COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3 1/4"

SPECIAL CONDITIONS  
(describe and draw)

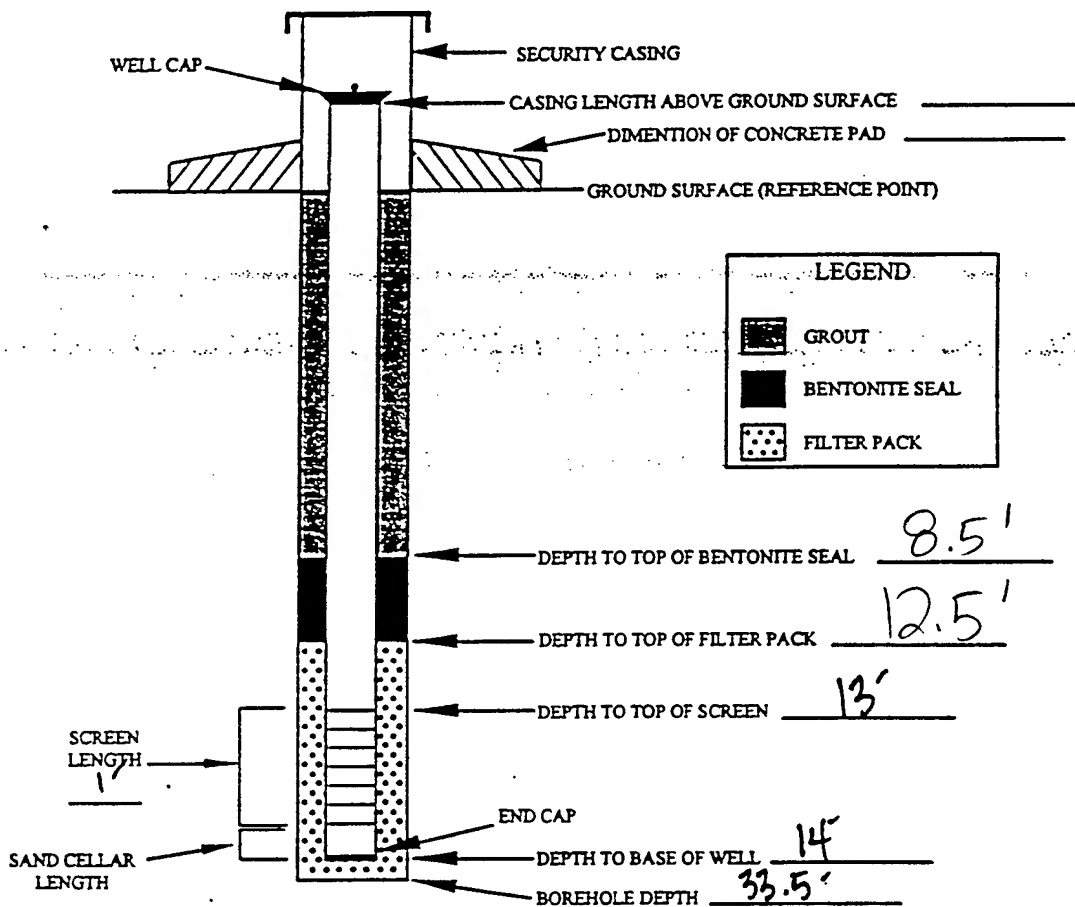


INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Mohaffi, Eddy (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 3  
 AUGER SIZE AND TYPE: 1 1/4" ID HSA TYPE OF BENTONITE: Pure gold  
 BOREHOLE IDENTIFICATION: SS06-MP3 AMOUNT BENTONITE USED: 4  
 BOREHOLE DIAMETER: 14" TYPE OF CEMENT: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06 MP3B AMOUNT CEMENT USED: \_\_\_\_\_  
 GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/8/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ TYPE OF WELL CAP: \_\_\_\_\_  
 TYPE OF END CAP: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4"  
 STRATUM-SCREENED INTERVAL (FT): 13'-14'  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: Global Sand

DRILLING CONTRACTOR: American Environmental

GRADATION: 25  
AMOUNT OF FILTER PACK USED: 2

DRILLING TECHNIQUE: CME 75

AUGER SIZE AND TYPE: 9 1/2" HSA

TYPE OF BENTONITE: Pure Gold

AMOUNT BENTONITE USED: 8

BOREHOLE IDENTIFICATION: SS06-MP3

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS06 MP3C

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/1/97

WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

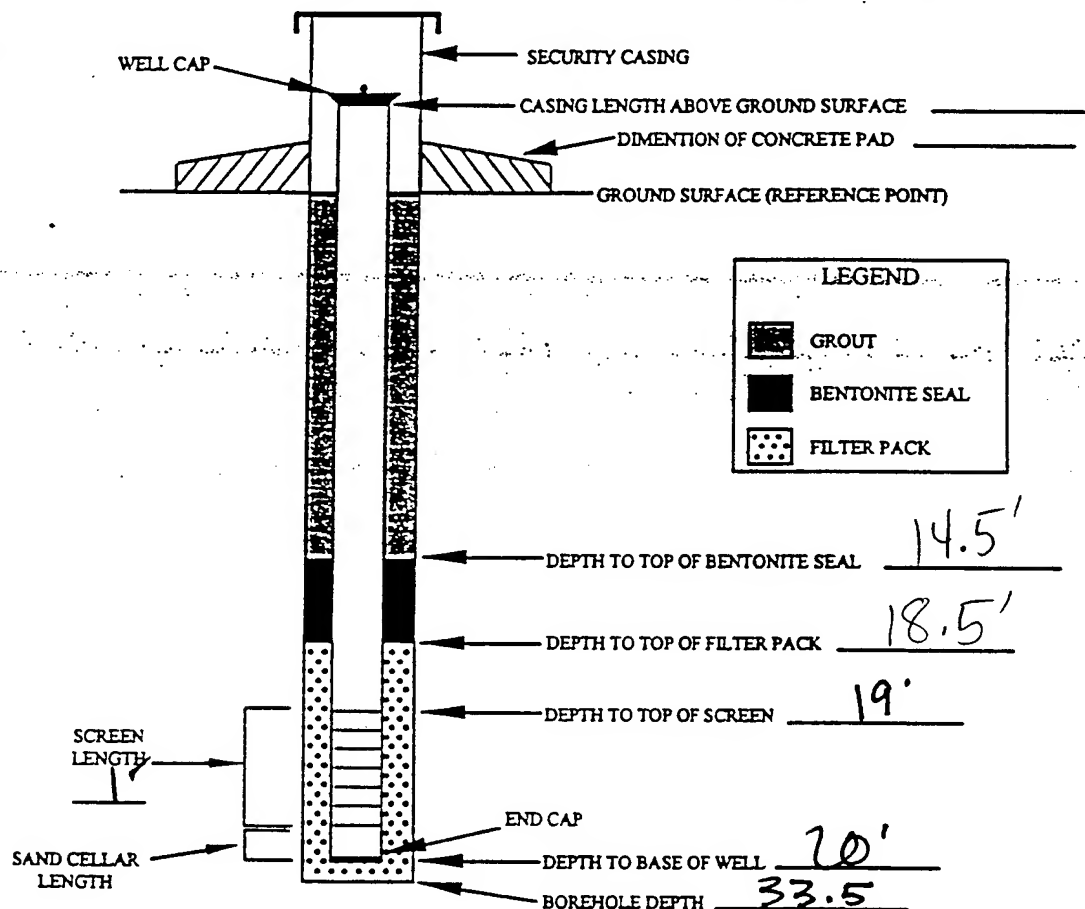
STRATUM-SCREENED INTERVAL (FT): 19-20

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

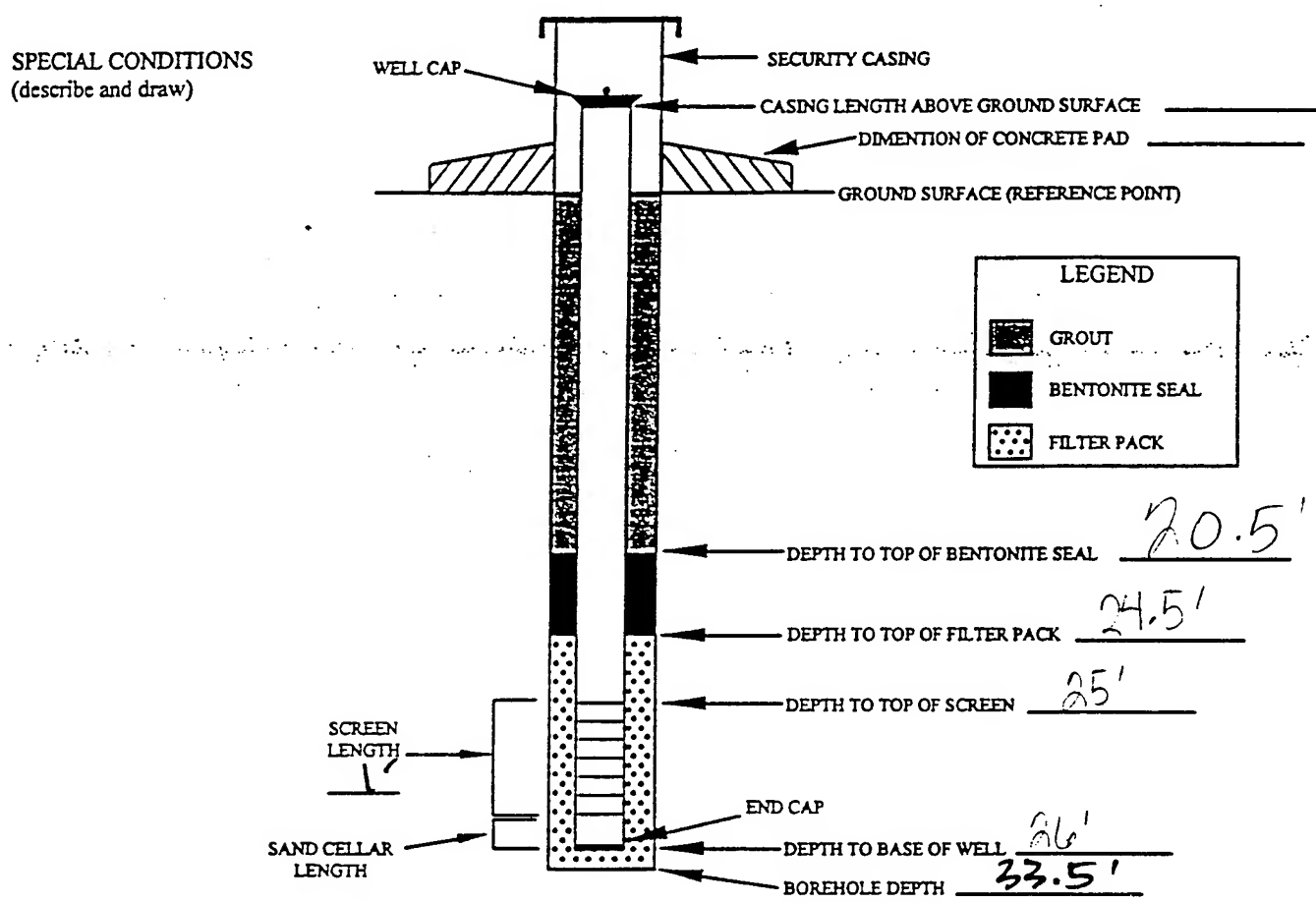
INSTALLATION OBSERVED BY: Metcalfe, Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

5246 MP 30

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
GRADATION: #5  
DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3  
DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold Chips  
AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 4  
BOREHOLE IDENTIFICATION: SS06-MP3 TYPE OF CEMENT: \_\_\_\_\_  
BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
WELL IDENTIFICATION: SS06-MP3D GROUT MATERIALS USED: \_\_\_\_\_  
WELL CONSTRUCTION START DATE: 11/8/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_  
SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
STRATUM-SCREENED INTERVAL (FT): 25-26 COMMENTS: \_\_\_\_\_  
CASING MATERIAL: PVC Schedule 40  
CASING DIAMETER: 3 1/4"



NOT TO SCALE

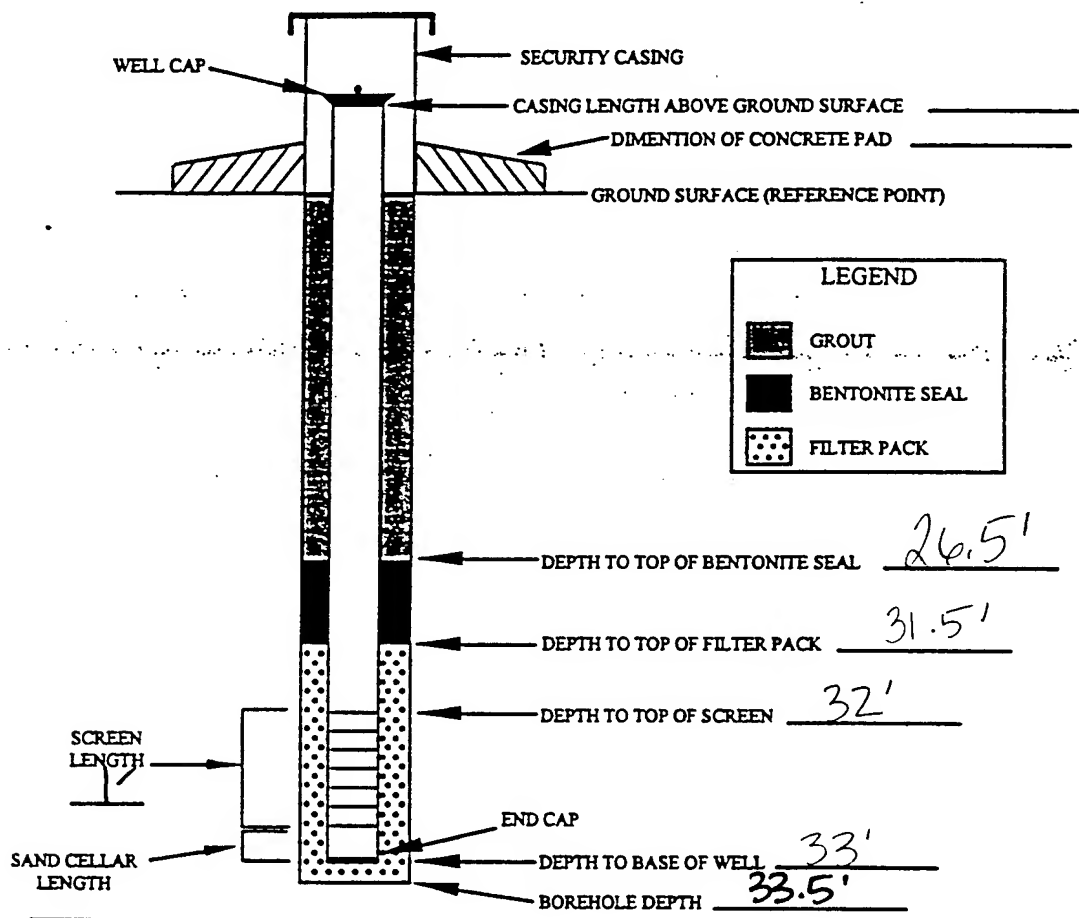
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Michael Staley Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: BChavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME75 AMOUNT OF FILTER PACK USED: 3  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA TYPE OF BENTONITE: Pure Gold Chips  
 AMOUNT BENTONITE USED: 12  
 BOREHOLE IDENTIFICATION: SS06-MP3 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP3E GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/8/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 32-33 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (BChavez)  
 DISCREPANCIES: \_\_\_\_\_



# BORING LOG

Borehole ID: SS06-MPT  
Sheet 1 of 1

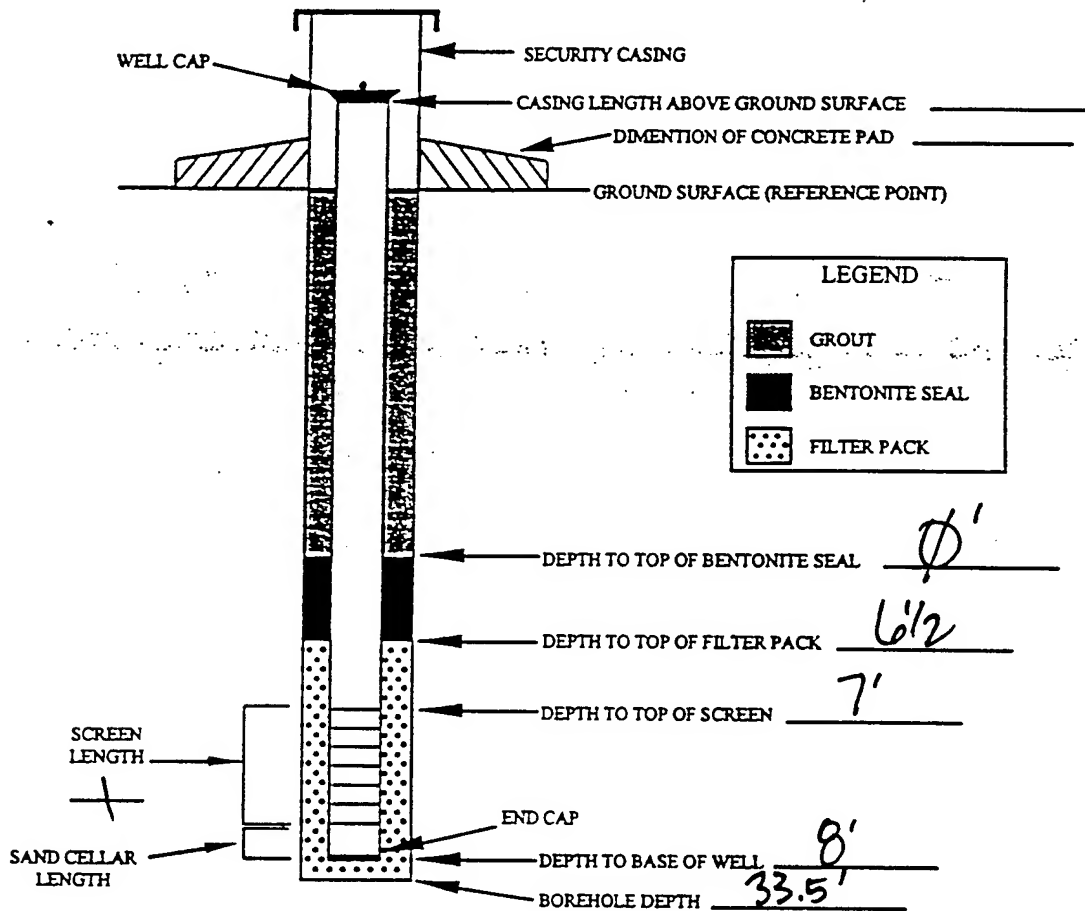
Project Name <b>Pilot Test Wells</b>				Project Number <b>021746</b>		LTCCODE (IRPIMS)		Site ID <b>SS06</b>		LPRCODE (IRPIMS)	
Drilling Company <b>American Environmental</b>				Driller <b>Ron Mathis</b>		Ground Elevation		Total Drilled Depth <b>33.5'</b>			
Drilling Equipment <b>CHE 75</b>		Drilling Method <b>9 1/4" HSA</b>		Borehole Diameter <b>14"</b>		Date/Time Drilling Started <b>11/10/97 0819</b>		Date/Time Total Depth Reached <b>11/10/97 0902 33.5'</b>			
Type of Sampling Device <b>—</b>						Water Level (bgs)			First <b>Final</b>		
Sample Hammer Type <b>—</b> Driving Wt. <b>—</b> Drop <b>—</b>						Hydrogeologist			Checked by/Date		
Location Description (include sketch in field logbook)											
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)			
				<b>(0-10) SAND(sp) 10UKE yellowish brown silty material</b>	<b>SP</b>		<b>14</b>				
				<b>10-20 10UKE part of 10UKE brown silty material</b>	<b>SP</b>		<b>M</b>	<b>261</b>			
				<b>(20-30) 10UKE silty material</b>			<b>M+</b>	<b>1177</b>			
				<b>(30-33.5) Same as above material</b>			<b>M+</b>	<b>1205</b>			

SS06 MP4A

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: glome sand  
DRILLING CONTRACTOR: American Environmental GRADATION: #5  
AMOUNT OF FILTER PACK USED: 4  
DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: pure gold  
AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 10  
BOREHOLE IDENTIFICATION: SS06-MP4 TYPE OF CEMENT: \_\_\_\_\_  
BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
WELL IDENTIFICATION: SS06-MP4A GROUT MATERIALS USED: \_\_\_\_\_  
WELL CONSTRUCTION START DATE: 11/10/97  
WELL CONSTRUCTION COMPLETE DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
STRATUM-SCREENED INTERVAL (FT): 7'-8" COMMENTS: \_\_\_\_\_  
CASING MATERIAL: PVC Schedule 40  
CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)  
DISCREPANCIES: \_\_\_\_\_

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

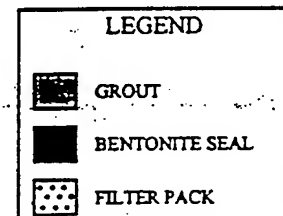
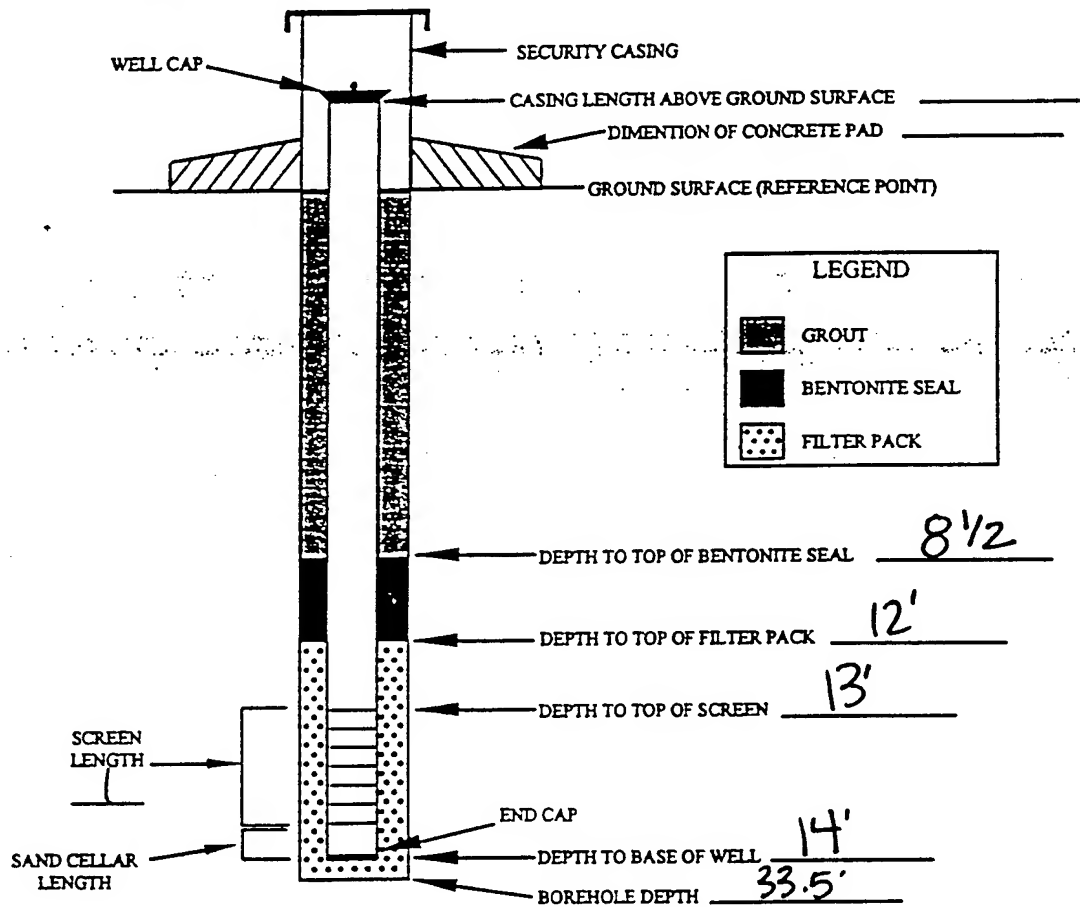
FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 2  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: pure gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 10  
 BOREHOLE IDENTIFICATION: SS06 MP4 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06 MP4B GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97

SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3 1/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 13-14'

CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3 1/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

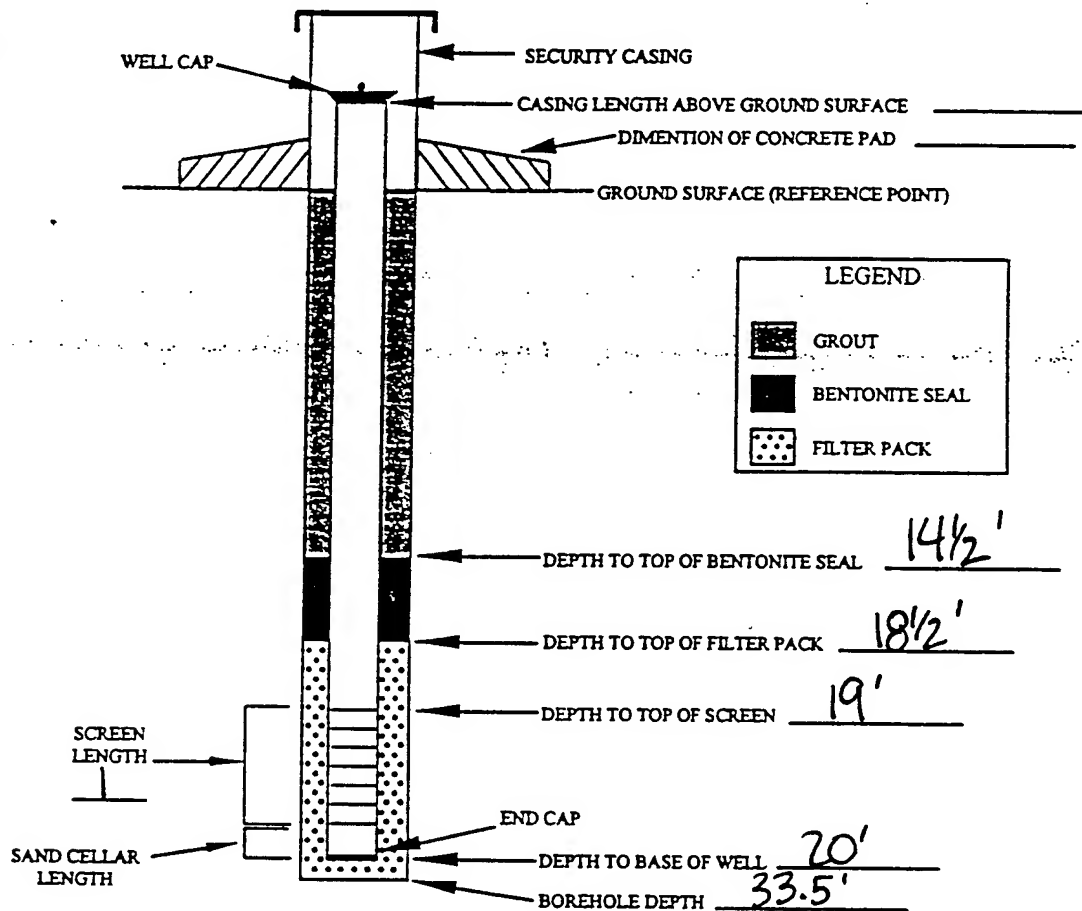
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metal City Inc. (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5 AMOUNT OF FILTER PACK USED: 2  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: pure gold  
 AUGER SIZE AND TYPE: 9 1/4" 10 HSA AMOUNT BENTONITE USED: 7  
 BOREHOLE IDENTIFICATION: SS06 MP4 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06 MP4C GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF END CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" COMMENTS: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 19-20  
 CASING MATERIAL: PVC Schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metalik, Eddy Inc (B Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS06 MP4D

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: global sandDRILLING CONTRACTOR: American Environ.GRADATION: #5DRILLING TECHNIQUE: CME 75AMOUNT OF FILTER PACK USED: 4AUGER SIZE AND TYPE: 9 1/4" ID HSATYPE OF BENTONITE: purc goldAMOUNT BENTONITE USED: 8BOREHOLE IDENTIFICATION: SS06-MP4

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS06-MP4D

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/10/97WELL CONSTRUCTION COMPLETE DATE: 11/10/97

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

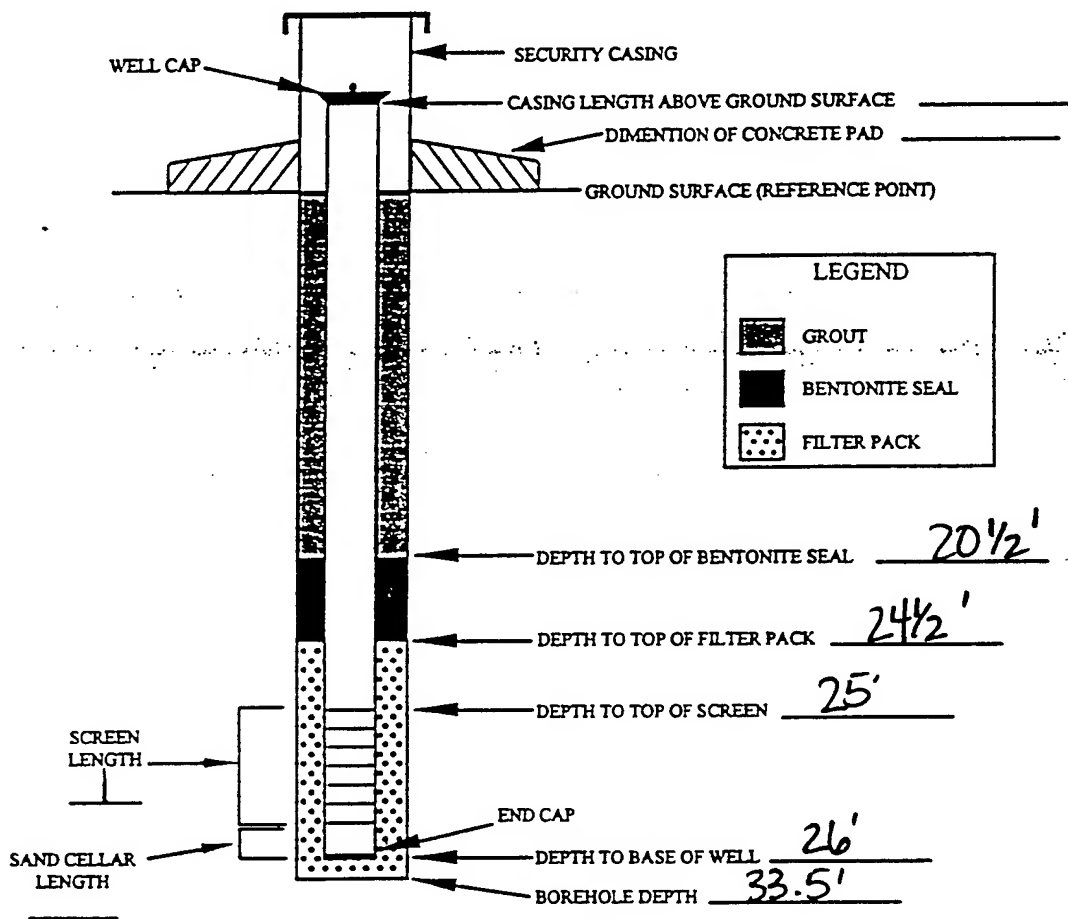
TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 25'-26'

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC Schedule 40CASING DIAMETER: 3/4"SPECIAL CONDITIONS  
(describe and draw)

NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metralf Eddy Inc. (B. Chavez)

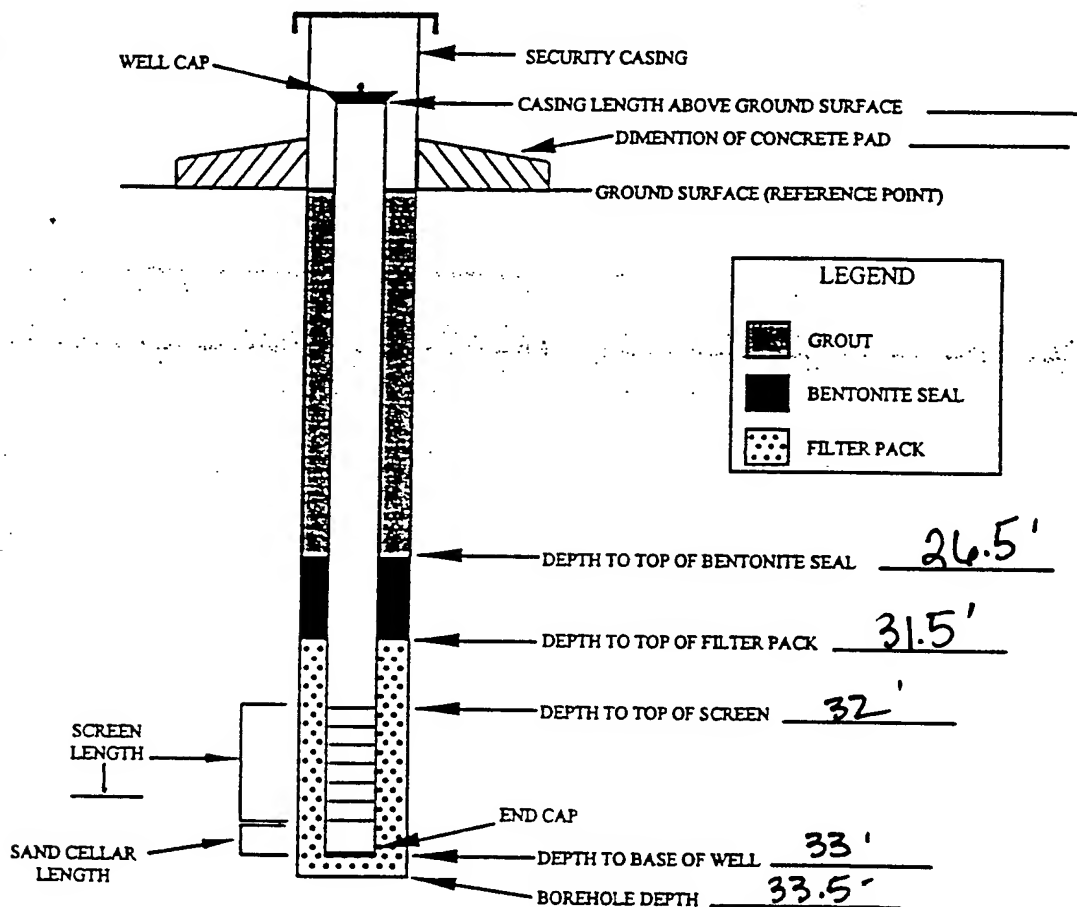
DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SS06-MP4E

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 4  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 7  
 BOREHOLE IDENTIFICATION: SS06-MP4 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP4E GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 32-33 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

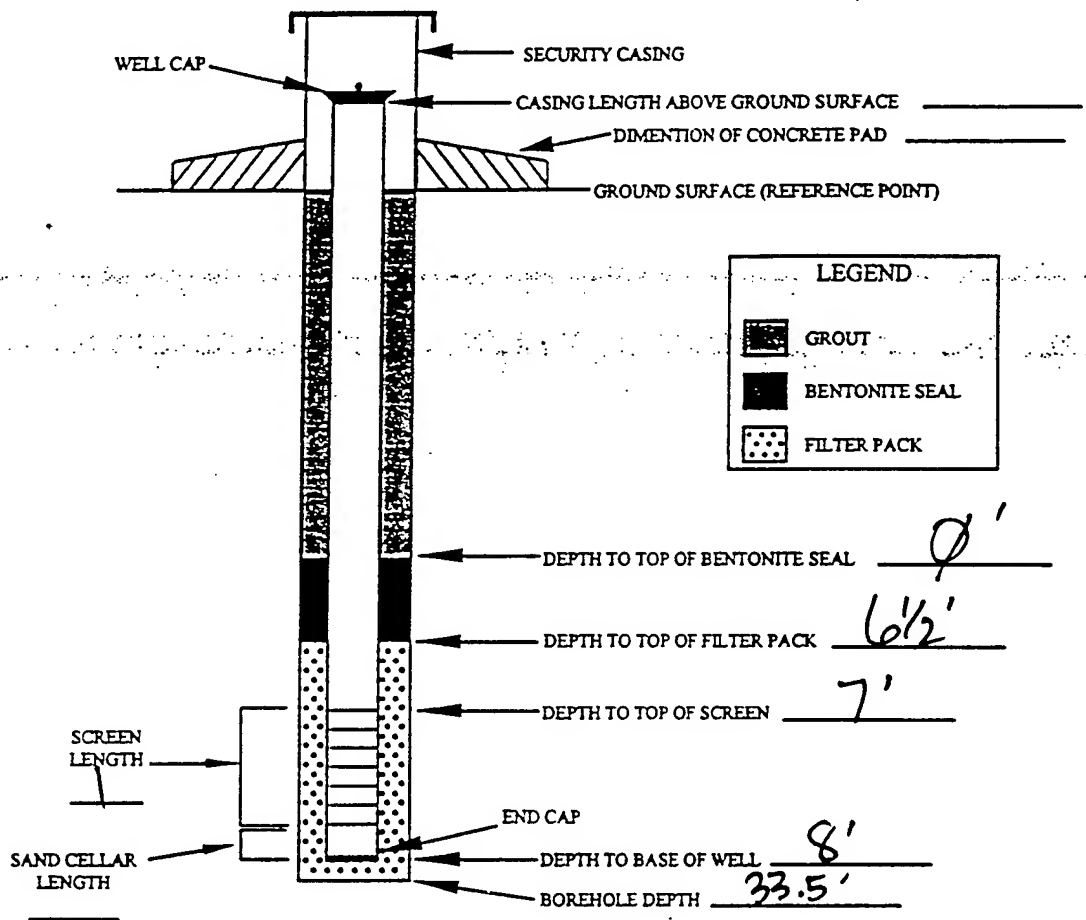
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf, Eddy Inc. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

5500-MP5A

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
DRILLING CONTRACTOR: American Environmental GRADATION: #5  
AMOUNT OF FILTER PACK USED: \_\_\_\_\_  
DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold Chips  
AUGER SIZE AND TYPE: 9 1/4" 1D HSA AMOUNT BENTONITE USED: \_\_\_\_\_  
BOREHOLE IDENTIFICATION: SS06-MP5 TYPE OF CEMENT: \_\_\_\_\_  
BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
WELL IDENTIFICATION: SS06-MP5A GROUT MATERIALS USED: \_\_\_\_\_  
WELL CONSTRUCTION START DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
WELL CONSTRUCTION COMPLETE DATE: 11/10/97 TYPE OF WELL CAP: \_\_\_\_\_  
TYPE OF END CAP: \_\_\_\_\_  
SCREEN MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
SCREEN DIAMETER: 3/4"  
STRATUM-SCREENED INTERVAL (FT): 7-8'  
CASING MATERIAL: PVC schedule 40  
CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
INSTALLATION OBSERVED BY: M.E. (B. Chavez)  
DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

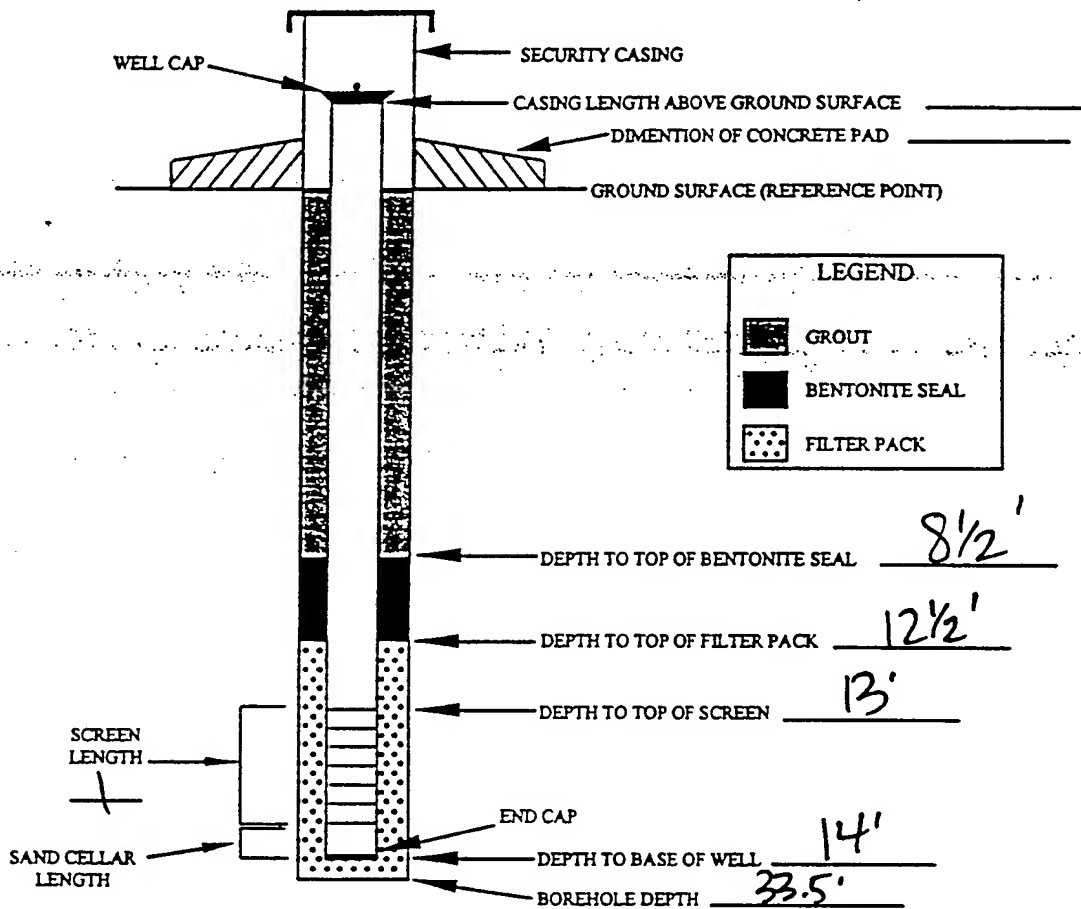
FIELD REPRESENTATIVE: B Chavez TYPE OF FILTER PACK: global sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 MOUNT OF FILTER PACK USED: 4  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA TYPE OF BENTONITE: Pure Naed  
 BOREHOLE IDENTIFICATION: SS06-MP5 AMOUNT BENTONITE USED: 6  
 BOREHOLE DIAMETER: 14" TYPE OF CEMENT: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP5B AMOUNT CEMENT USED: \_\_\_\_\_  
 GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97

SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 13-14'

CASING MATERIAL: PVC Schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



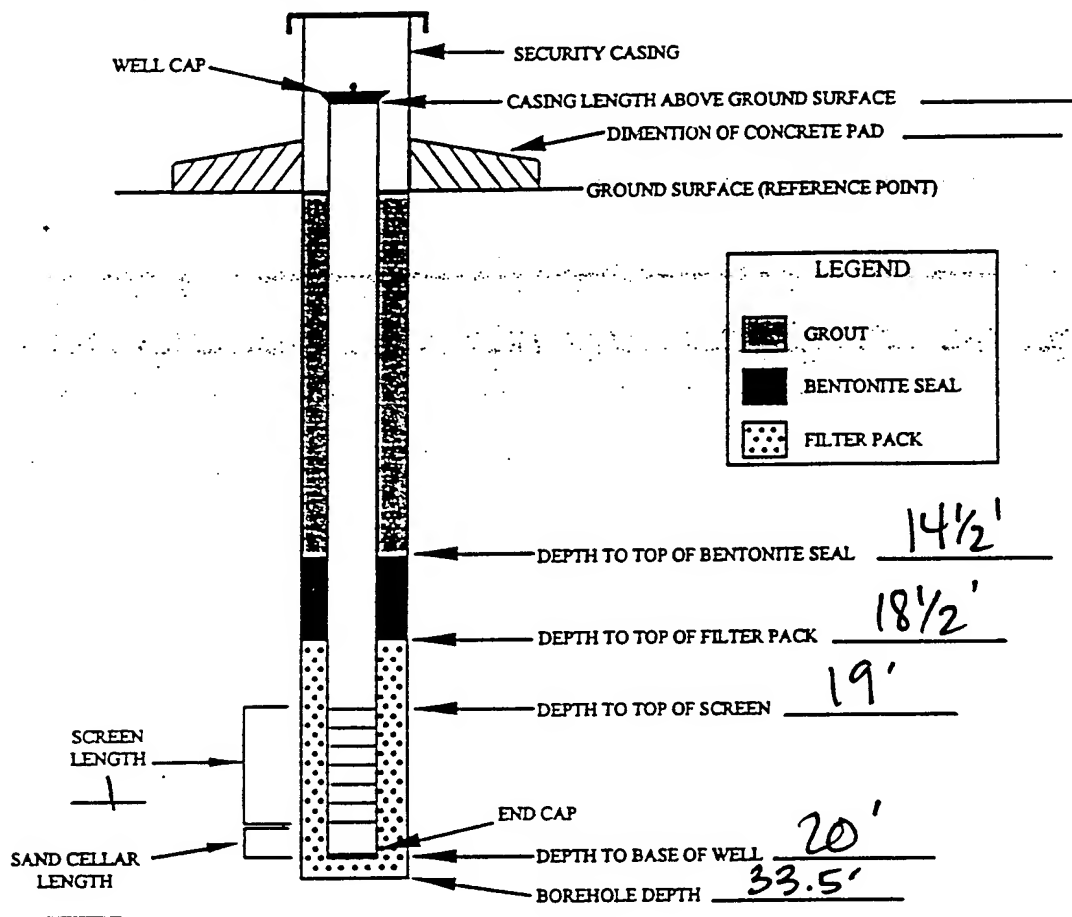
INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: M.E. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: \_\_\_\_\_  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 9 1/4" ID HSP AMOUNT BENTONITE USED: \_\_\_\_\_  
 BOREHOLE IDENTIFICATION: SS06-MP56 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8 1/4" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP56 GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/10/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3 1/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 19-20 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3 1/4"

SPECIAL CONDITIONS  
(describe and draw)

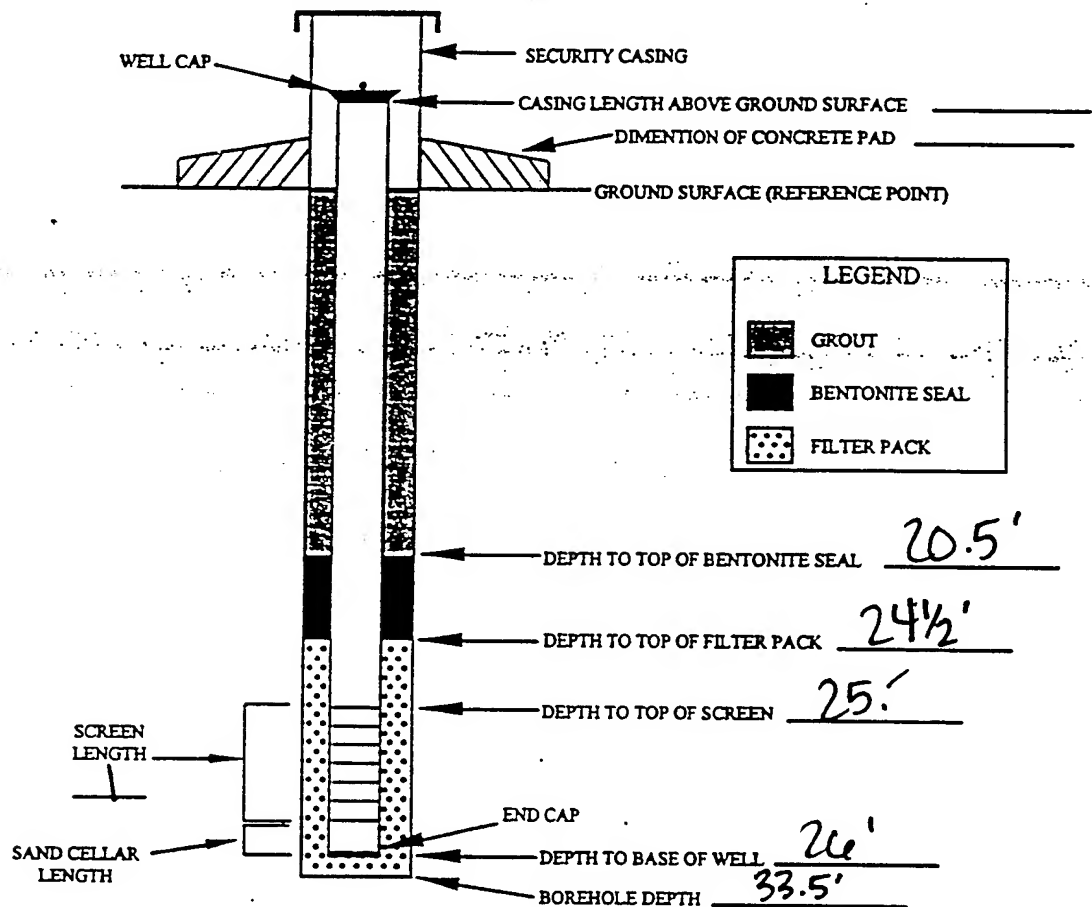


INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: MJE (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chaver TYPE OF FILTER PACK: global sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 2  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: bentonite pure gold  
 AUGER SIZE AND TYPE: 9 1/4" ID H&A AMOUNT BENTONITE USED: \_\_\_\_\_  
 BOREHOLE IDENTIFICATION: SS06-MP5 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-MP5 D GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/10/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/10/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 25'-26' COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40'  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: M.E. (B. Chaver)  
 DISCREPANCIES: \_\_\_\_\_

SS06-  
MP5E

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: global sandDRILLING CONTRACTOR: American EnvironmentalGRADATION: #5DRILLING TECHNIQUE: CME 75AMOUNT OF FILTER PACK USED: 6AUGER SIZE AND TYPE: 9 1/4" ID HSATYPE OF BENTONITE: pure redAMOUNT BENTONITE USED: 7BOREHOLE IDENTIFICATION: SS06-MP5

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS06-MP5E

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/10/97

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

WELL CONSTRUCTION COMPLETE DATE: 11/10/97SCREEN MATERIAL: PVC schedule 40

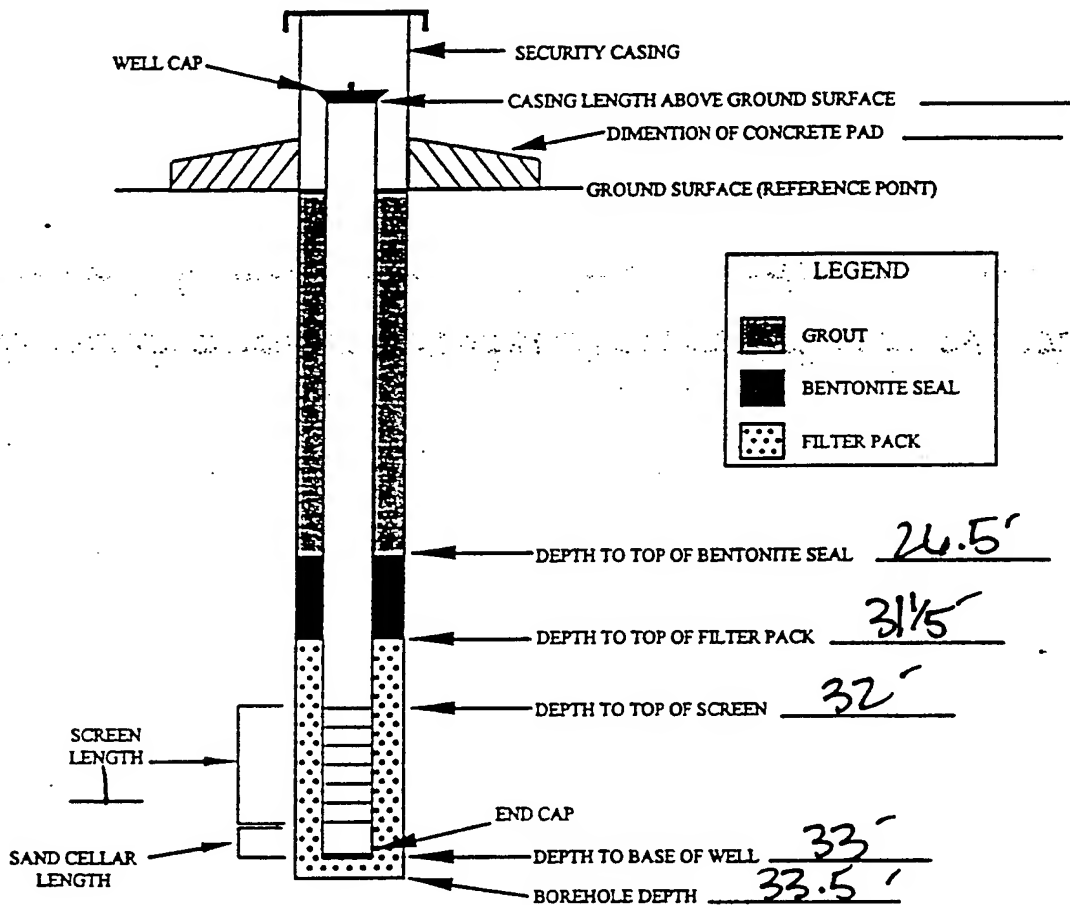
TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 5/4"

TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 32-33

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40CASING DIAMETER: 3/4"SPECIAL CONDITIONS  
(describe and draw)INSTALLED BY: American EnvironmentalINSTALLATION OBSERVED BY: M.E. Beck Chavez

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS06-VE  
 Sheet 1 of 1 SS06-MPL

logged From cuttings

Project Name <b>Pilot Test Wells</b>			Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>center location for site</b>	
Drilling Company <b>American Environmental</b>			Driller <b>Steve Sikora</b>		Ground Elevation		Site ID <b>SS06</b> LPRCODE (IRPIMS)	
Drilling Equipment <b>CME 75</b>			Drilling Method <b>HSA(9/4)</b>		Borehole Diameter <b>13"</b>		Total Drilled Depth <b>23' (bgs)</b>	
Type of Sampling Device			Date/Time Drilling Started <b>10/29/97 / 0845</b>		Date/Time Total Depth Reached <b>10/29/97 / 0921 / 23'</b>			
Sample Hammer			Water Level (bgs) First <b>23'</b> Final <b>22'</b>		Hydrogeologist <b>B. Chavez</b>			
Type <u>    </u> Driving Wt. <u>    </u> Drop <u>    </u>			Checked by/Date					
Location Description (include sketch in field logbook) <b>after well had set it was noticed there was 1' of water so <sup>depth</sup> elevation was changed to 22'</b>								

Depth	Interval	Recovery	Blow Counts	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name &amp; notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Lithology	Water Content	Remarks <small>(Include all sample types &amp; depth, odor, organic vapor measurements, etc.)</small>
0	0-5			SAND (SP) 10YR 5/4 yellowish brown, medium to very fine grained, and somewhat rounded grains	SP		M	φ
5	5-10			Same as above material	SP		M	φ
10	10-15			Same as above material	SP		M	51.6
15	15-20			Same as above material (10YR 5/3 brown)				181
20	20-23			Same as above material				403
23	END OF BORING 23' log							

SS06-VE1

SS06-MP

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: Global Silica SandGRADATION: # 5.0DRILLING CONTRACTOR: American EnvironmentalAMOUNT OF FILTER PACK USED: 19DRILLING TECHNIQUE: CME 75TYPE OF BENTONITE: Baroid 3/8" ChipsAUGER SIZE AND TYPE: 9 1/4" ID HSAAMOUNT BENTONITE USED: 7BOREHOLE IDENTIFICATION: SS06-VE1

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 13"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS06-VE1

GROUT MATERIALS USED: \_\_\_\_\_

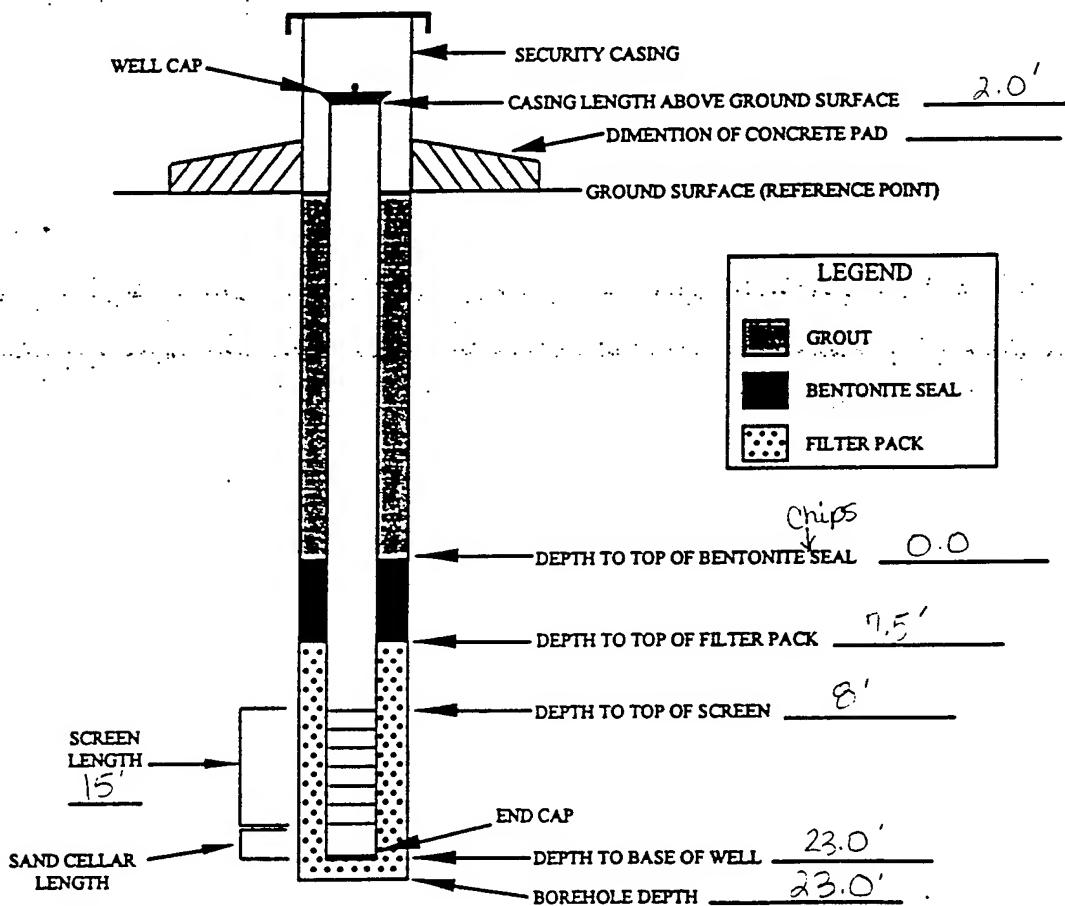
WELL CONSTRUCTION START DATE: \_\_\_\_\_

WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 80TYPE OF WELL CAP: J-PlugSCREEN DIAMETER: 4" x 1"TYPE OF END CAP: PVCSTRATUM-SCREENED INTERVAL (FT): 8'-23'

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVCCASING DIAMETER: 4" x 1"SPECIAL CONDITIONS  
(describe and draw)

NOT TO SCALE

INSTALLED BY: American EnvironmentalINSTALLATION OBSERVED BY: B. Chavez (Metraif, fddy)

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS06-S1  
Sheet 1 of 3

Project Name <b>Pilot Test Wells</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>5' West of VE1</b>		
Drilling Company <b>American Environmental</b>		Driller <b>Steve Sikora</b>		Ground Elevation		Site ID <b>SS06</b>		
Drilling Equipment <b>CME 75</b>		Drilling Method <b>HSA(4 1/4")</b>		Borehole Diameter <b>6"</b>		Total Drilled Depth <b>43.0 feet</b>		
Date/Time Drilling Started <b>10/27/97 1415</b>		Date/Time Total Depth Reached <b>10/27/97 1745</b>		Date/Time Drilling Started <b>10/27/97 1415</b>		Date/Time Total Depth Reached <b>10/27/97 1745</b>		
Type of Sampling Device <b>Split Spoon Sampler</b>		Water Level (bgs) First <b>22'</b> Final <b>22'</b>		Sample Hammer Type <b>hydraulic</b> Driving Wt. <b>140</b> Drop <b>18"</b>		Hydrogeologist <b>B. Chavez</b>		
Checked by/Date		Location Description (include sketch in field logbook) <b>after well was set it was noticed that there was 1' of water in well so the water level was changed to 22'</b>						
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
2	0-2'	100%	2.3 4.5	SAND(SM), Silty Sand 5Lk 2-5/2 dark reddish brown 10/2K 5/4 clay, low density, low to medium density, low to medium plasticity, moist	SM	M		Ø
4	2'-6"	100%	3.2 3.2	6"-2'-SAND(SP) 10/2K 5/4, yellowish brown, poorly graded, v. fine grained, low density, trace med. grained subangular sand, moist	SP	M		Ø
6	6"-10"	100%	1.1 2.1	SAME AS INTERVAL 6"-2' Some black discoloration	SP	M		Ø
8	10"-14"	100%	2.1 3.3	Same as above material	SP	M		Ø
10	14"-18"	100%	2.2 2.4	Same as above material	SP	M		Ø
12	18"-22"	100%	3.4 4.4	10-10.5 10Lk 4/3 brown Same material as above	SP	M		Ø
14	22"-26"	100%	3.3 6.1	10Lk 4/3, pale brown, dark brown staining, trace subrounded to rounded pebbles 1/8" dia	SP	M		31
16	26"-30"	100%	2.2 2.5	Same as above material	SP	M		Ø
18	30"-34"	100%	13.2 20.3	Same as above material	SP	M		Ø
20	34"-38"	100%	6.10 13.2	Subsided to irregular trace of no sand	SP	M		Ø
22	38"-42"	100%	6.10 13.2	Same as above material	SP	M		Ø

# BORING LOG

Borehole ID: SS06-S1  
 Sheet 2 of 3

Project Name				Project Number		LTCCODE (IRPIMS)		Site ID		LPRCODE (IRPIMS)	
Drilling Company				Driller		Ground Elevation		Total Drilled Depth			
Drilling Equipment		Drilling Method		Borehole Diameter		Date/Time Drilling Started		Date/Time Total Depth Reached			
Type of Sampling Device						Water Level (bgs)					
						First		Final			
Sample Hammer						Hydrogeologist		Checked by/Date			
Type						Driving Wt.		Drop			
Location Description (include sketch in field logbook)											
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)			
20	10'-12'	100%	58, 10, 25	SAND(SP) 10 UP 6/3, pale brown, trace subround to rounded pebbles 10mm dia, poorly sorted, moist	SP	M		590	Very Strong odor		
22	12'-14'	100%	6, 10, 17, 29	Same material as above	SP	M-W		636	V. Strong odor		
24	14'-16'	100%	6, 8, 12, 20	Same material as above. dark brown discoloration @ 24'-25' saturated	SP	W		282			
26	16'-18'	100%	6, 8, 11, 21	Same as 24' interval. material no discoloration few rounded pebbles	SP	W		78			
28	18'-20'	100%	8, 10, 16, 40	Same material as above. 10 UP 5/2 grayish brown	SP	W		8.4			
30	20'-22'	100%	6, 9, 20, 29	Same material as above	SP	W		25			
32	22'-24'	100%	8, 10, 16, 40	Same material as above	SP	W		8.2			
34	24'-26'	100%	7, 12, 19, 26	Same material as above	SP	W		7.7			
36	26'-28'	100%	6, 8, 11, 21	Same material as above	SP	W		0.6			

# BORING LOG

Borehole ID: SS06-S1  
Sheet 3 of 3

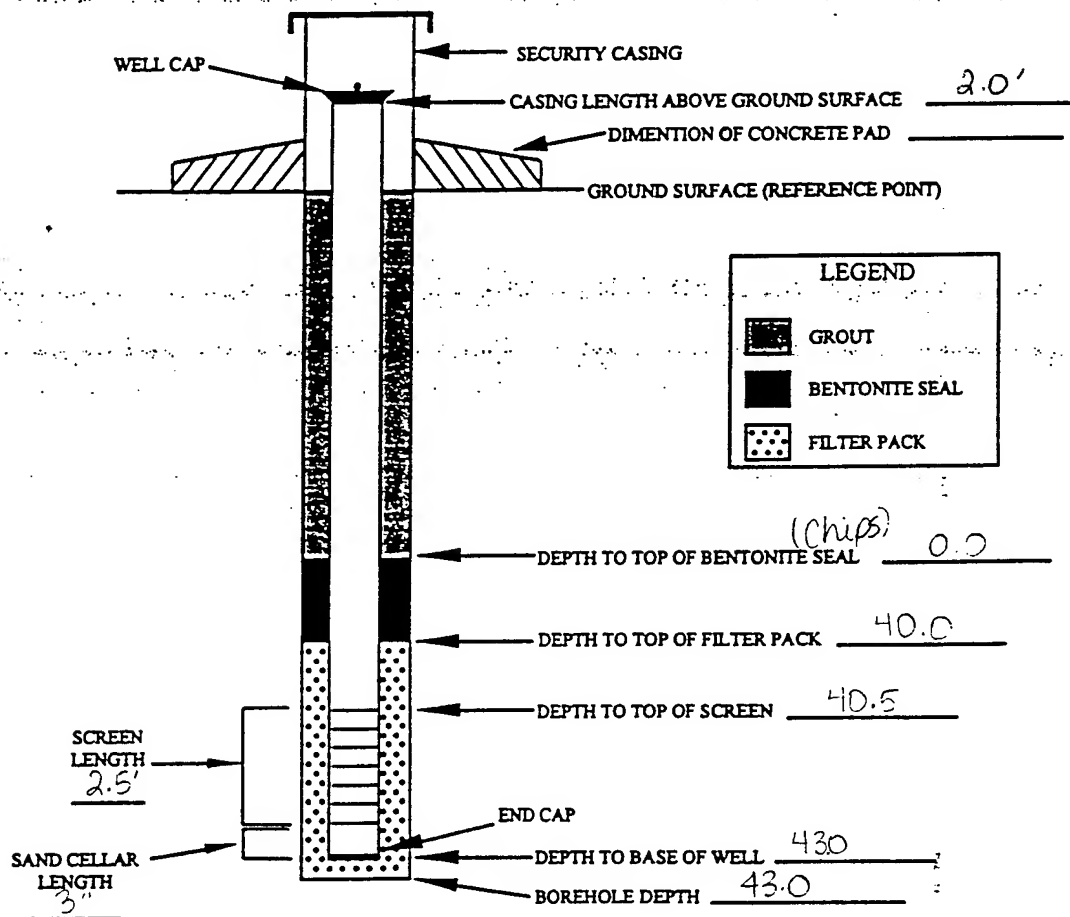
				Location			
Project Name		Project Number		LTCCODE (IRPIMS)		Site ID	
Drilling Company		Driller		Ground Elevation		Total Drilled Depth	
Drilling Equipment		Drilling Method		Borehole Diameter		Date/Time Drilling Started	
						Date/Time Total Depth Reached	
Type of Sampling Device				Water Level (bgs)			
				First		Final	
Sample Hammer				Hydrogeologist		Checked by/Date	
Type		Driving Wt.		Drop			
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Count	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content (Include all sample types & depth, odor, organic vapor measurements, etc.)
38	38-40	-		Same material as above	Sf	W	Ø
40	40-42	-		Same material as above	Sf	W	Ø
42				Drilled 1' to total depth			
				43' TOTAL DEPTH			



## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 GRADATION: #50  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3.5  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Baroid 3/8" Chips  
 AUGER SIZE AND TYPE: 4 1/4" ID HSA AMOUNT BENTONITE USED: 20  
 BOREHOLE IDENTIFICATION: SS06-S1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 6" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS06-S1 GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: \_\_\_\_\_ DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: J-Plug  
 SCREEN DIAMETER: 1" TYPE OF END CAP: PVC  
 STRATUM-SCREENED INTERVAL (FT): 40.5-43 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC  
 CASING DIAMETER: 1"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE :

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalfe, Edly (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

## WELL DEVELOPMENT RECORD

WELL/PIEZOMETER ID SS06-S1  
SHEET 1 of 1

PROJECT NAME: Pilot Test PROJECT NO.: 021746 DATE: \_\_\_\_\_  
LOCATION: SSD6 DATE INSTALLED: 10/27/97  
TOTAL DEPTH (FTOC) \_\_\_\_\_ CASING DIAMETER 1"

## METHODS OF DEVELOPMENT

☐ Swabbing    ☐ Bailing    ☒ Pumping    ☐ Describe \_\_\_\_\_

Equipment decontaminated prior to development    ☐ Yes    ☒ NO

Describe used peristaltic pump w/ disposable tubing

EQUIPMENT NUMBERS: (015235)  
pH Meter Hydac EC Meter Hydac Turbidity Meter \_\_\_\_\_ Thermometer Hydac

**CASING VOLUME INFORMATION:**

Casing ID (inch)	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0	8.0
Unit Casing Volume (A) (gal/ft)	0.04	0.09	0.16	0.2	0.37	0.65	0.75	1.0	1.5	2.0	2.6

PURGING INFORMATION:

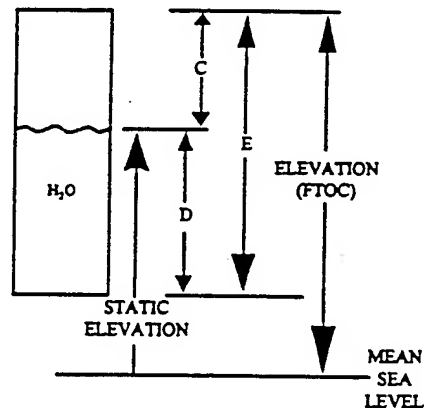
Measured Well Depth (B) \_\_\_\_\_ ft.

Measured Water Level Depth (C) \_\_\_\_\_ ft.

Length of Static Water Column (D)  $\frac{\text{---}}{(B)} - \frac{\text{---}}{(C)} = \text{---}$  ft.

$$\text{Casing Water Volume (E)} + \frac{0.04}{(A)} \times \frac{\quad}{(D)} = \quad \text{gal}$$

Total Purge Volume = \_\_\_\_\_ (gal)

[illegible]

Borehole ID: SS06-MP5  
Sheet 1 of 1

AFCEE FORM BL11

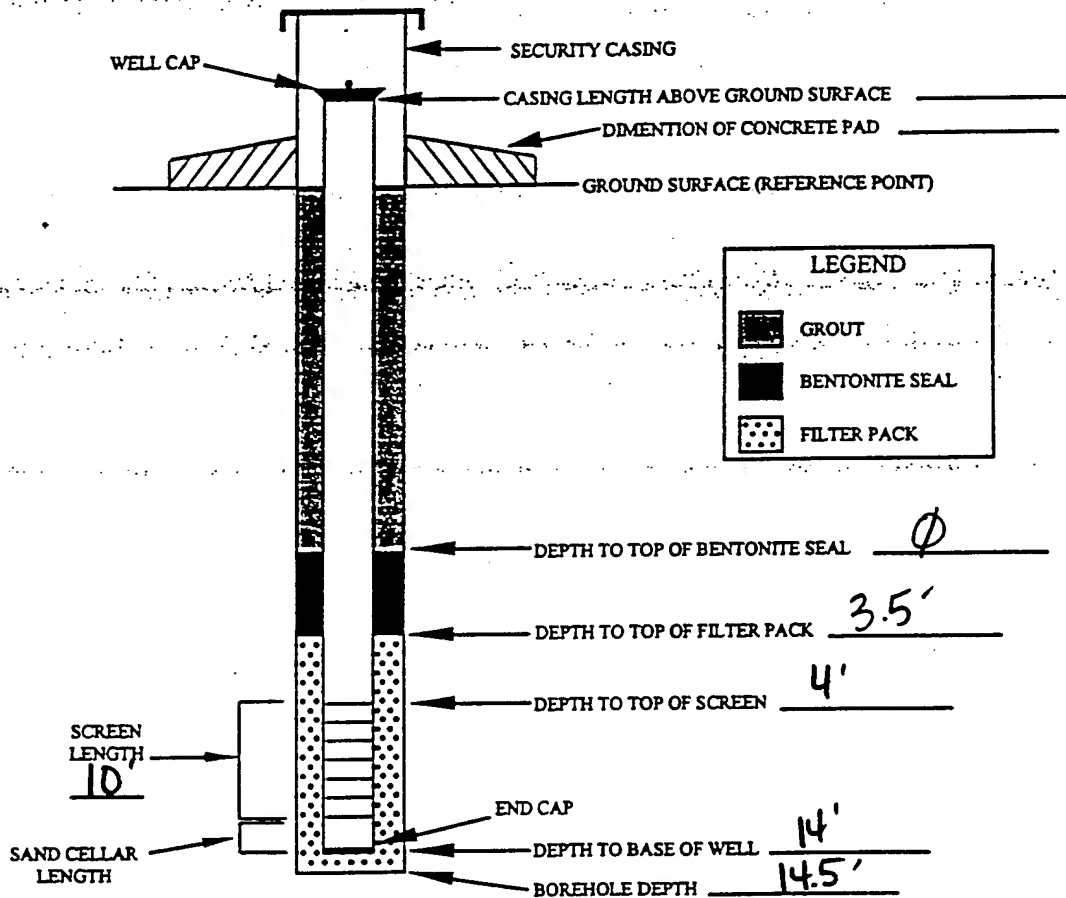
Borehole ID: SS08A-VE1  
Sheet 1 of 1

AFCEE FORM BL11

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 7  
 AUGER SIZE AND TYPE: 6 1/4" 10HSA TYPE OF BENTONITE: Pure Gold  
 AMOUNT BENTONITE USED: 2  
 BOREHOLE IDENTIFICATION: SS08A-VE1/MP6 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 10" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-VE1 GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 4'-14"  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE  
 INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS08A-MP6

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: Global SandDRILLING CONTRACTOR: American EnvironmentalGRADATION: #5AMOUNT OF FILTER PACK USED: 7 bagsDRILLING TECHNIQUE: CME 75TYPE OF BENTONITE: Pure GoldAUGER SIZE AND TYPE: 6 1/4" ID HSAAMOUNT BENTONITE USED: 2 bagsBOREHOLE IDENTIFICATION: SS08A-VE1/MP6

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 10"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08A-MP6

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/5/97WELL CONSTRUCTION COMPLETE DATE: 11/5/97

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC schedule 40

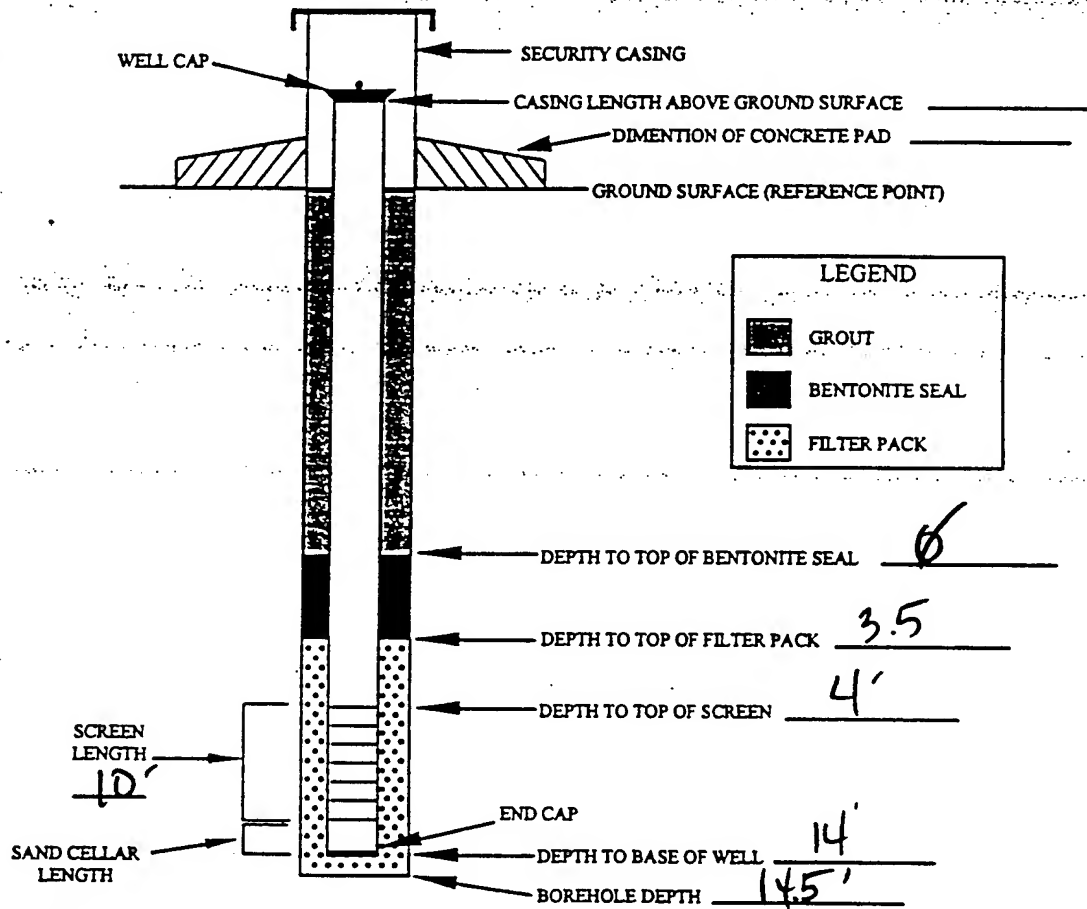
TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 4-14'CASING MATERIAL: PVC schedule 40

COMMENTS: \_\_\_\_\_

CASING DIAMETER: 3/4"SPECIAL CONDITIONS  
(describe and draw)

NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalfe, Eddy and (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

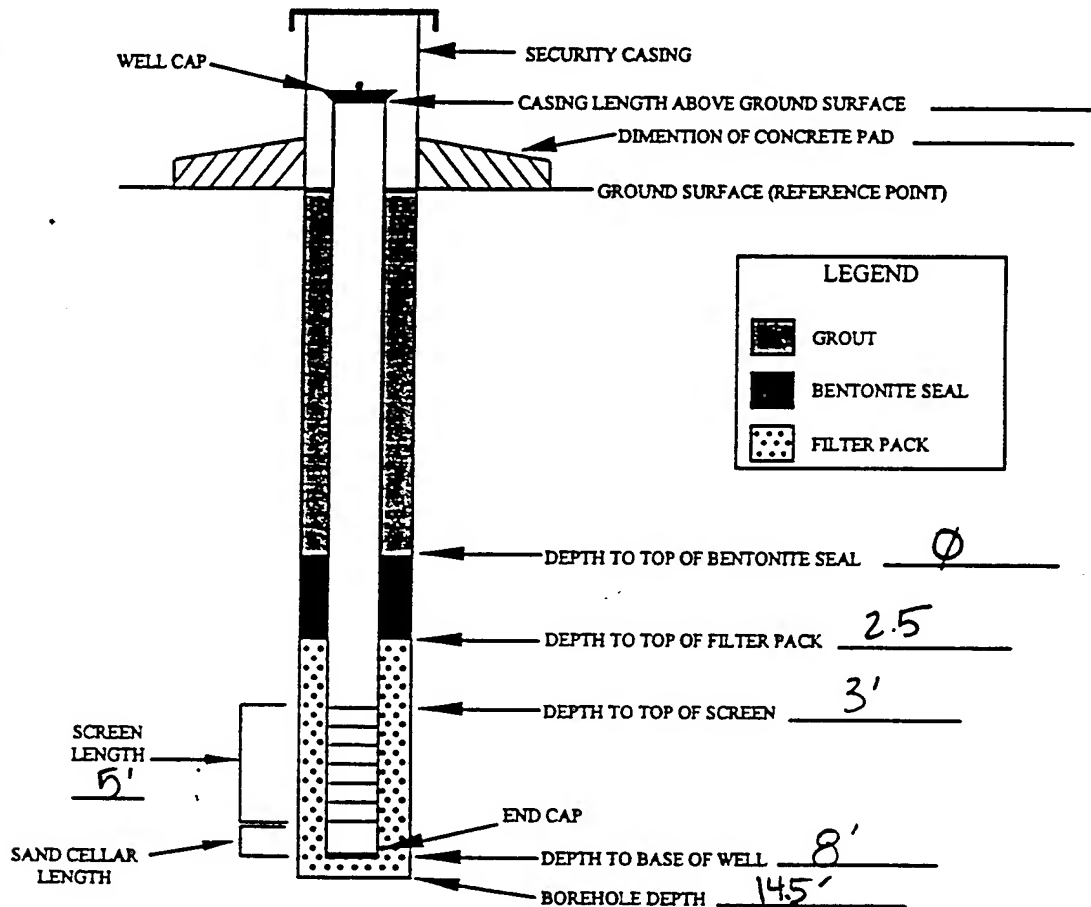
Borehole ID: **SS08A-MP1**  
 Sheet **1** of **1**

Project Name <b>Pilot Test Wells</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>5' South of VE1/MPG</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathes</b>		Ground Elevation		Site ID <b>SS08A</b>	
Drilling Equipment <b>CME75</b>		Drilling Method <b>4 1/4" HSA</b>		Borehole Diameter <b>8"</b>		Total Drilled Depth <b>14.5'</b>	
Date/Time Drilling Started <b>11/5/97 1100</b>		Date/Time Total Depth Reached <b>11/5/97 1112</b>		Date/Time Drilling Started <b>11/5/97 1100</b>		Date/Time Total Depth Reached <b>11/5/97 1112</b>	
Type of Sampling Device <b>—</b>		Water Level (bgs) <b>not encountered</b>		First <b>—</b>		Final <b>—</b>	
Sample Hammer <b>—</b>		Hydrogeologist <b>B. Chavez</b>		Checked by/Date <b>—</b>		Type <b>—</b>	
Driving Wt. <b>—</b>		Drop <b>—</b>		Type <b>—</b>		Location Description (include sketch in field logbook)	
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content (include all sample types & depth, odor, organic vapor measurements, etc.)
1				(0-5) - op 1 - drive - in fine grained, silty, brownish yellow, poorly sorted, trace pebbles, sub rounded, low density, silty plastic, v. fine grained moist	SP	M	Ø
3				(5-10) Same as above material 10/12/94 light yellowish brown trace cobbles	SP	M	Ø
5				(10-14) Same as above material no cobbles wet at 15'	SP	M-W	Ø
7				End of boring at 14.5'			
9							
11							
13							
15							

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global silica sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3 bags  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 4 1/4" 10 HSA AMOUNT BENTONITE USED: 1/4 bag  
 BOREHOLE IDENTIFICATION: SS08A-MPI TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MPIA GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 3-8'  
 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

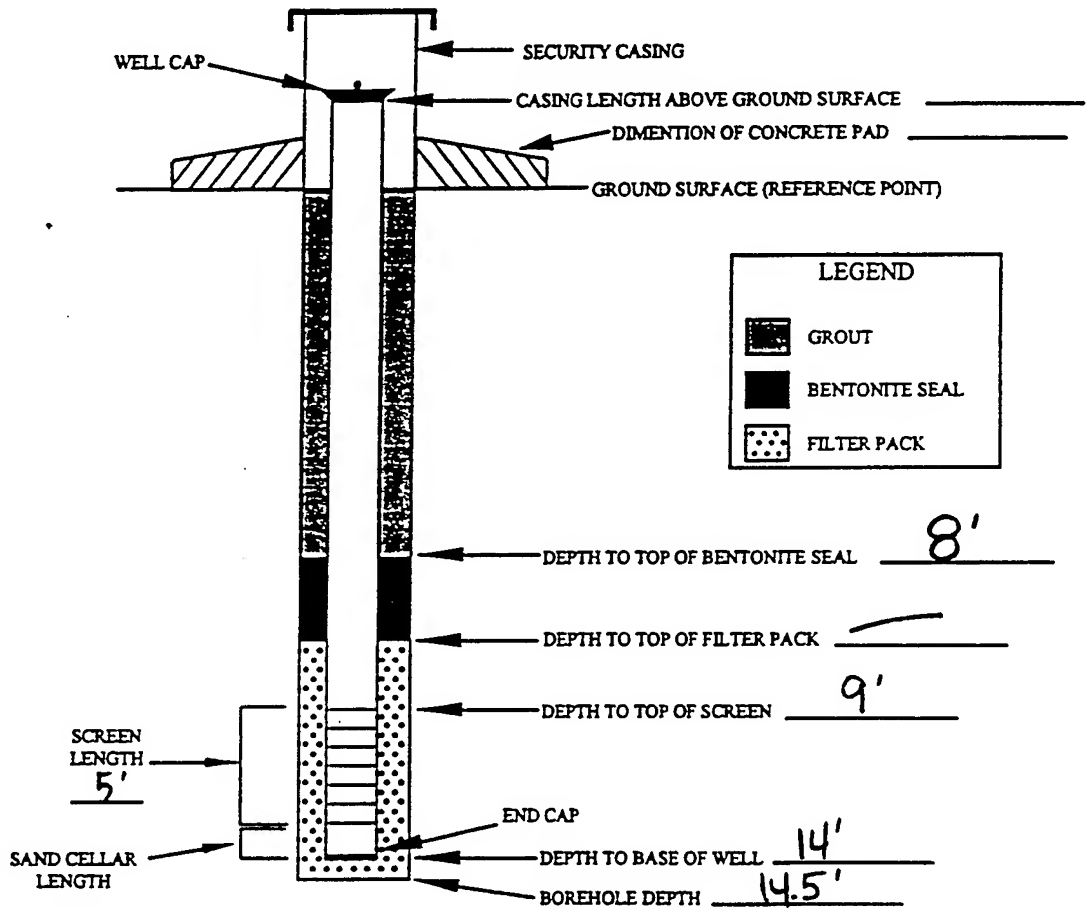
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B Chavez)  
 DISCREPANCIES: \_\_\_\_\_



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3 bags  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 4 1/4" ID HSA AMOUNT BENTONITE USED: 2 1/2 bags  
 BOREHOLE IDENTIFICATION: SS08A-MP1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MP1B GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 5 1/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 9-14'  
 CASING MATERIAL: PVC Schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 5 1/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf Eddy Inc. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: **SS08A-MPZ**  
Sheet **1** of **1**

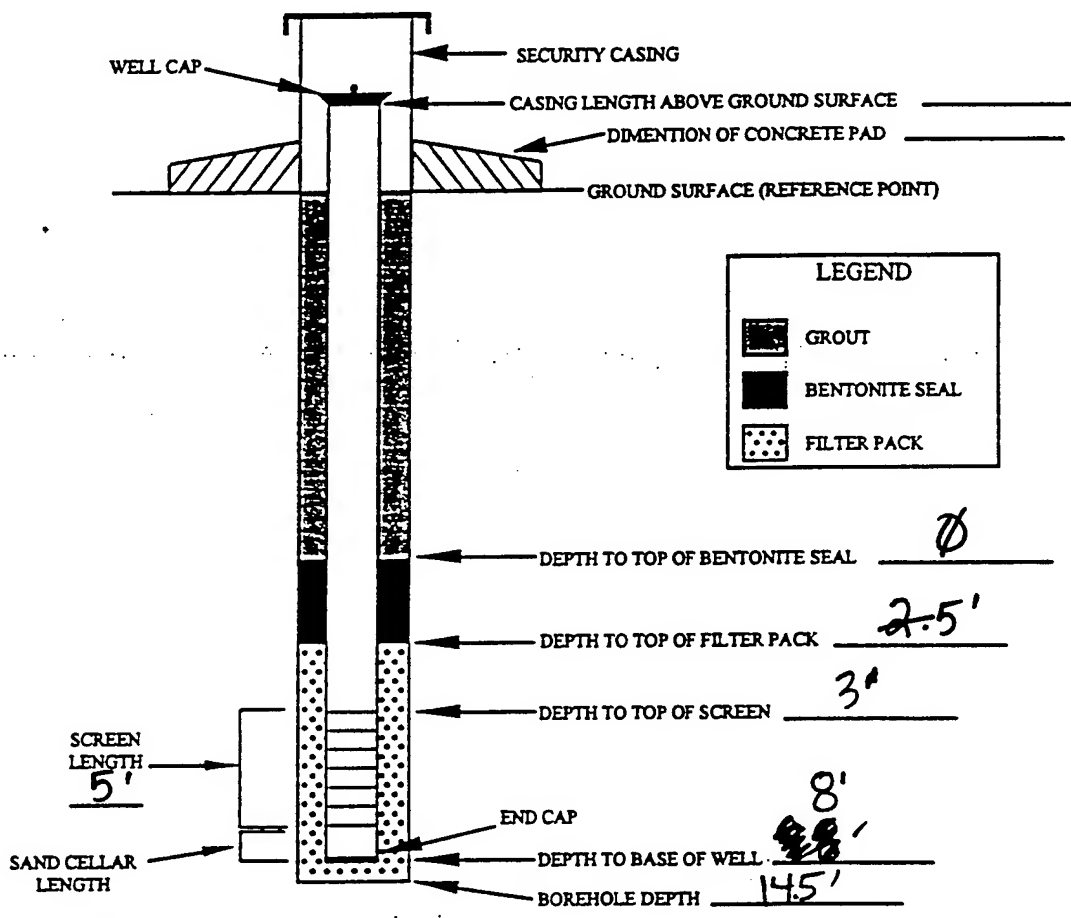
Project Name <b>Pilot Test Wells</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>10' NW of VE1/MP6</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathes</b>		Ground Elevation		Site ID <b>SS08A</b>	
Drilling Equipment <b>CME 75</b>		Drilling Method <b>4'4" HSA</b>		Borehole Diameter <b>8"</b>		LPRCODE (IRPIMS)	
Type of Sampling Device —		Date/Time Drilling Started <b>11/5/97 1145</b>		Date/Time Total Depth Reached <b>11/5/97 1235</b>		Total Drilled Depth <b>14.5'</b>	
Sample Hammer Type — Driving Wt. — Drop —		Water Level (ogs) First — Final —		Hydrogeologist <b>B. Chavez</b>		Checked by/Date	
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content
1				(0-5) Sep 1' gravel fill			
3				SAND (SP) 10% brownish yellow, poorly sorted, subrounded, (lower 2'?) Diastichian fine grained	SP	M	Ø
5				(5-10)			
7				Same as above material	SP	M	Ø
9				(10-15)			
11				Same as above material	SP	M	Ø
13				End of Boring at 14.5'			
15							

Logged from cuttings

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 DRILLING TECHNIQUE: CME 75 AMOUNT OF FILTER PACK USED: 2 1/2  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA TYPE OF BENTONITE: Pure Gold  
 AMOUNT BENTONITE USED: 2 1/4 bag  
 BOREHOLE IDENTIFICATION: SS08A-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MP2A GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" ID TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 3-8 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: 3/4" ID

SPECIAL CONDITIONS  
(describe and draw)

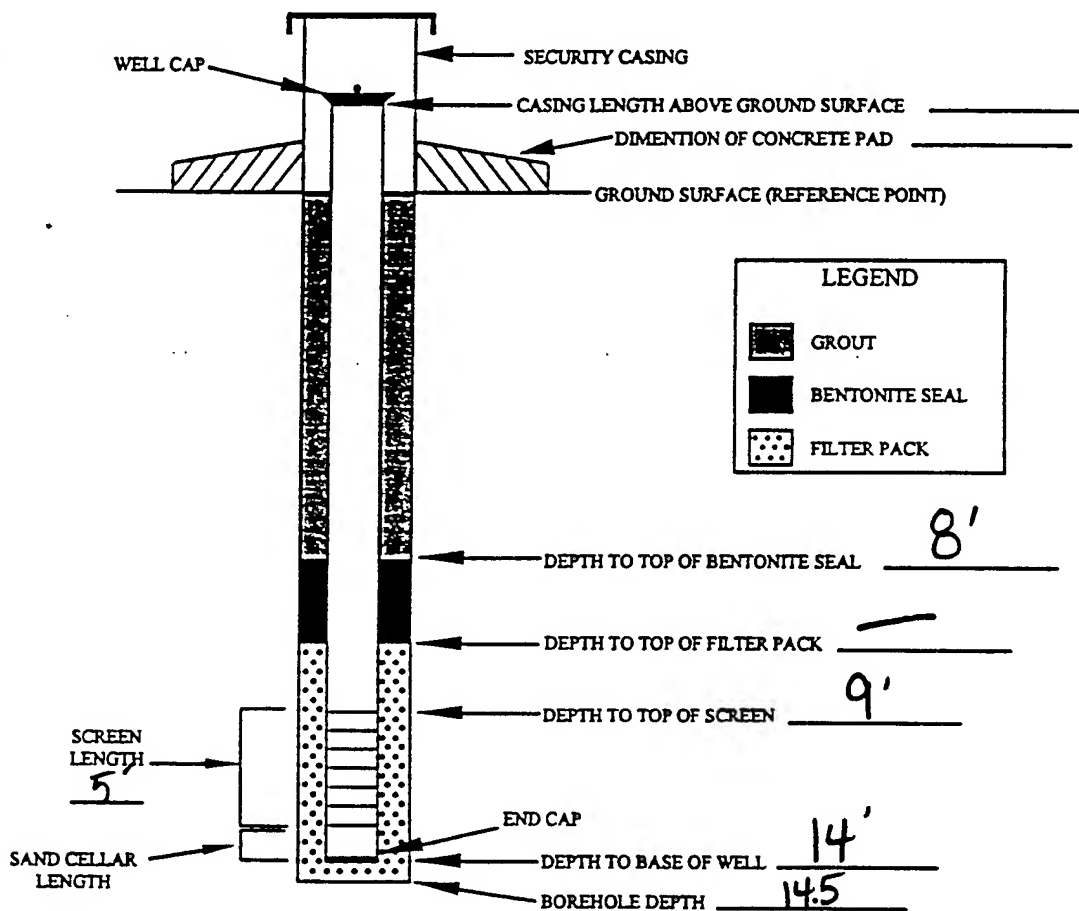


INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Metcalf: Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 2 bags  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 4 1/4 ID HSA AMOUNT BENTONITE USED: 1/2 bag  
 BOREHOLE IDENTIFICATION: SS08A-MP2 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MP2B GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 9'-14' COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC Schedule 40'  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental NOT TO SCALE  
 INSTALLATION OBSERVED BY: Met call; Eddy and B. Chavez  
 DISCREPANCIES: \_\_\_\_\_

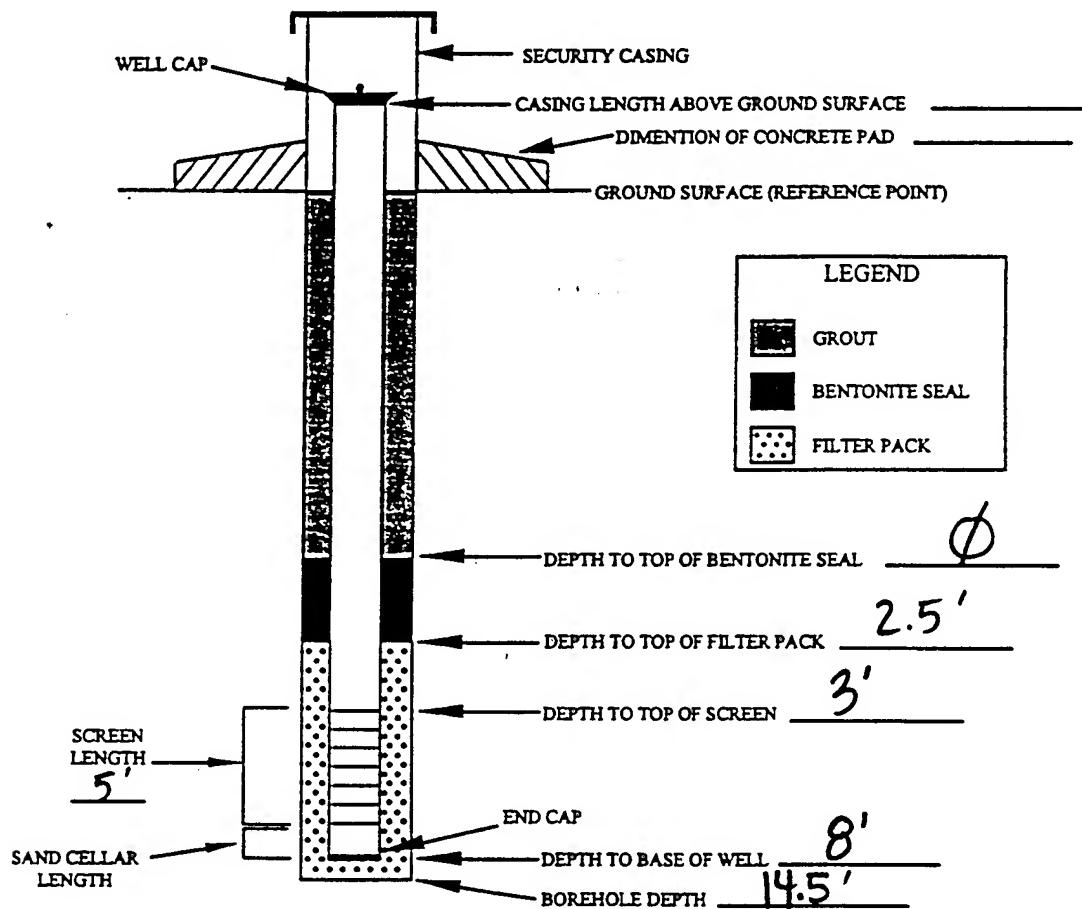
Borehole ID: SS08A-MP3  
Sheet 1 of 1

AFCEE FORM BL11

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
GRADATION: #5  
DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 2 1/2 bags  
DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
AUGER SIZE AND TYPE: 1 1/4" ID HSA AMOUNT BENTONITE USED: 2 1/4 bags  
BOREHOLE IDENTIFICATION: SS08A-MP3 TYPE OF CEMENT: \_\_\_\_\_  
BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
WELL IDENTIFICATION: SS08A-MP3A GROUT MATERIALS USED: \_\_\_\_\_  
WELL CONSTRUCTION START DATE: 11/5/97  
WELL CONSTRUCTION COMPLETE DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
STRATUM-SCREENED INTERVAL (FT): 3-8'  
CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)

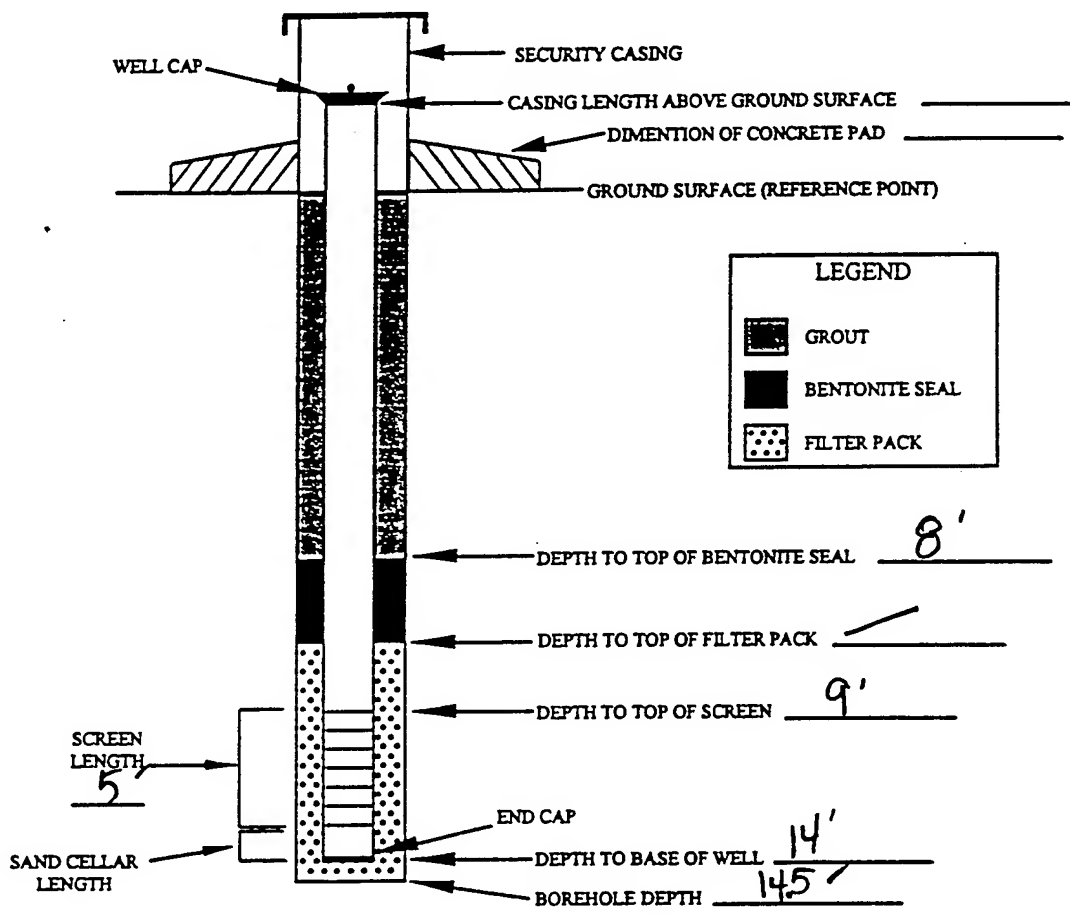


NOT TO SCALE  
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)  
DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 2 1/2 bags  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 4 1/4" ID HSA AMOUNT BENTONITE USED: 1/4 bag  
 BOREHOLE IDENTIFICATION: SS08A-MP3 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MP3B GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF END CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" COMMENTS: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 9-14'  
 CASING MATERIAL: PVC schedule 40'  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE  
 INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf Eddy Inc (B Chavez)  
 DISCREPANCIES: \_\_\_\_\_





SS08A-MP4A

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: Global Silica Sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5  
AMOUNT OF FILTER PACK USED: 3 bags

DRILLING TECHNIQUE: CME 75

TYPE OF BENTONITE: Pure Gold

AUGER SIZE AND TYPE: 4 1/4" ID HSA

AMOUNT BENTONITE USED: 1 3/4 bags

BOREHOLE IDENTIFICATION: SS08A-MP4

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 6"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08A-MP4A

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/5/97

DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

WELL CONSTRUCTION COMPLETE DATE: 11/5/97

SCREEN MATERIAL: PVC schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

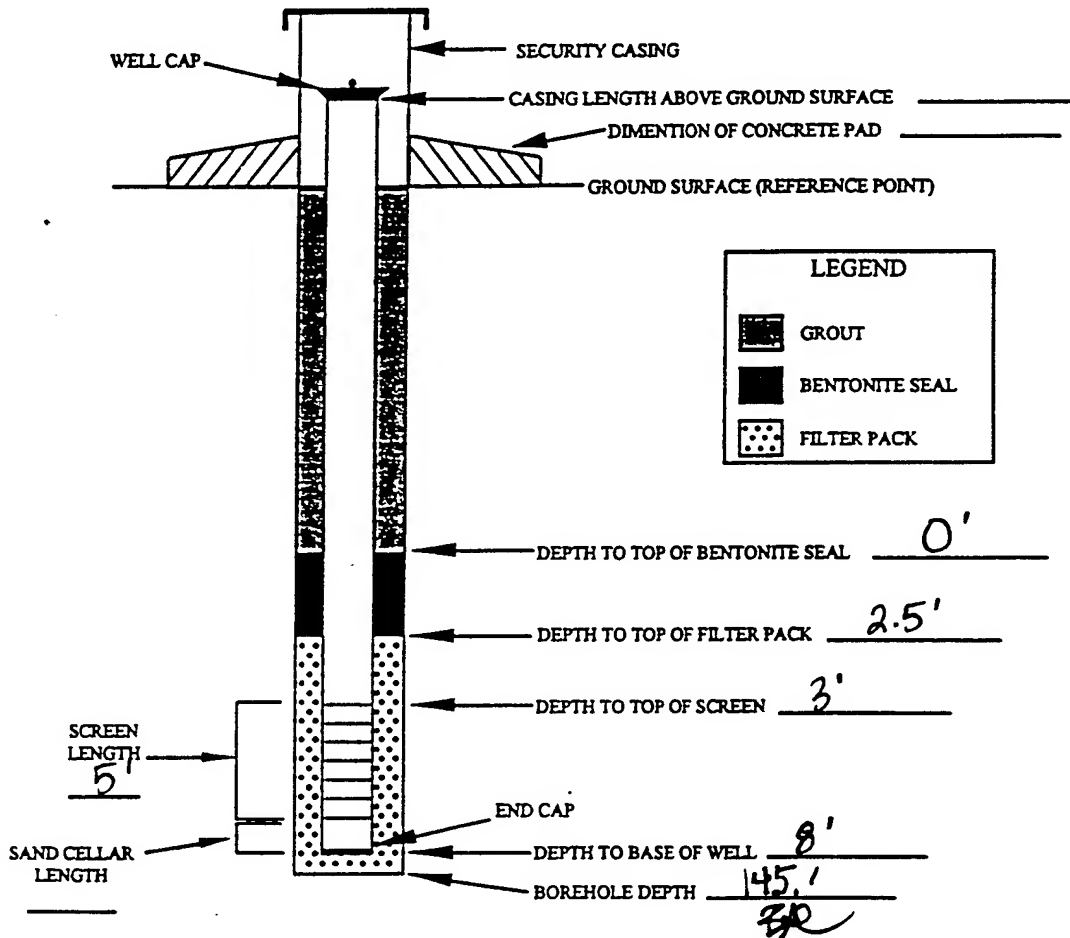
STRATUM-SCREENED INTERVAL (FT): 3'-8"

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

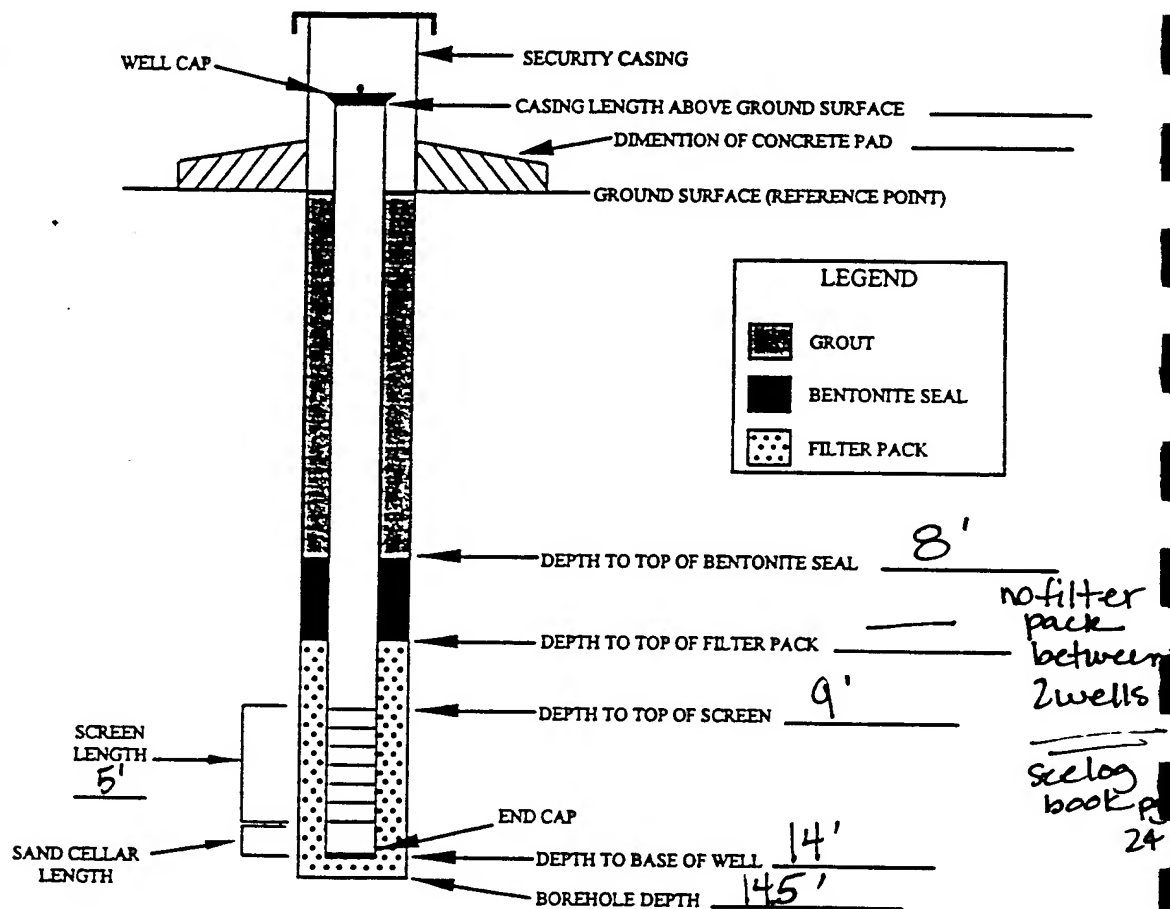
INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: Global Silica Sand  
 DRILLING CONTRACTOR: American Environmental GRADATION: #5  
 AMOUNT OF FILTER PACK USED: 2 1/4  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 4 1/4" ID HSA AMOUNT BENTONITE USED: 1/2 bag  
 BOREHOLE IDENTIFICATION: SS08A-MP4-B TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 6" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08A-MP4-B GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/5/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/5/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 9-14  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE  
 INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc. (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS08A-MP5  
Sheet 1 of 1

Project Name <u>Pilot Test Wells</u>		Project Number <u>021746</u>		LTCCODE (IRPIMS)		Location <u>40' NE of VE1/MP6</u>	
Drilling Company <u>American Environmental</u>		Driller <u>Ron Mathes</u>		Ground Elevation		Site ID <u>SS08A</u>	
Drilling Equipment <u>CME 75</u>		Drilling Method <u>4 1/4" ID HSA</u>		Borehole Diameter <u>8"</u>		Total Drilled Depth <u>14.5'</u>	
Type of Sampling Device		Date/Time Drilling Started <u>11/6/97 0730</u>		Date/Time Total Depth Reached <u>11/6/97 0745</u>		<u>14.5 ft</u>	
Sample Hammer		Water Level (bgs)		First		Final	
Type		Driving Wt.		Drop		Hydrogeologist <u>B. Chavez</u>	
Checked by/Date		Location Description (include sketch in field logbook)					

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
1				(0-5) Top 1' is gravel fill				
3				SAND (ST) 10 YR 6/6 brownish yellow; 1. fine grained, low density, low plasticity; trace of cobbles	Sp	M		Ø
5				(5-10)				
7				Same as above material	Sp	M		Ø
9								
11				(10-14)				
13				Same as above material	Sp	M-W		Ø
15				end of boring at 14.5'				

SSOEF-NYSK

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

DRILLING CONTRACTOR: American Environmental

DRILLING TECHNIQUE: CME75

AUGER SIZE AND TYPE: 4 1/4" 10 HSA

BOREHOLE IDENTIFICATION: SSOBA-MP5

BOREHOLE DIAMETER: 8"

WELL IDENTIFICATION: SSOBA-MP5A

WELL CONSTRUCTION START DATE: 11/6/97

WELL CONSTRUCTION COMPLETE DATE: 11/6/97

SCREEN MATERIAL: PVC schedule 40

SCREEN DIAMETER: 3/4"

STRATUM-SCREENED INTERVAL (FT): 3-8'

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

TYPE OF FILTER PACK: Global sand

GRADATION: #5

AMOUNT OF FILTER PACK USED: 4

TYPE OF BENTONITE: Puregold chips

AMOUNT BENTONITE USED: 1/4

TYPE OF CEMENT: \_\_\_\_\_

AMOUNT CEMENT USED: \_\_\_\_\_

GROUT MATERIALS USED: \_\_\_\_\_

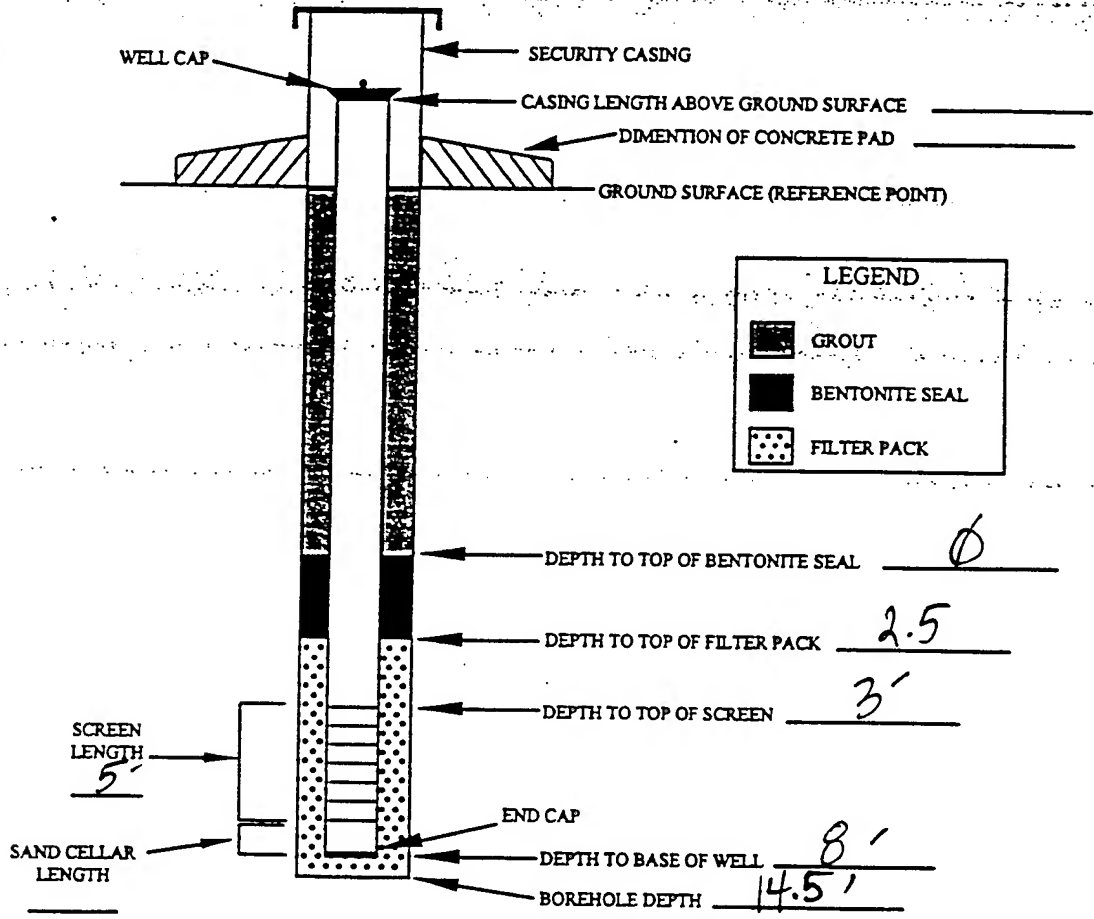
DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

TYPE OF WELL CAP: \_\_\_\_\_

TYPE OF END CAP: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf, Eddy Inc. (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

NOT TO SCALE

# BORING LOG

Borehole ID: SS08B-1  
 Sheet 1 of 2 S1

Project Name <b>Pilot Test Well</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>5' South of VE1/MP6</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathew</b>		Ground Elevation		Site ID <b>SS08B</b>	
Drilling Equipment <b>CME 75</b>		Drilling Method <b>9 1/4" IDHSA</b>		Borehole Diameter <b>14"</b>		LPRCODE (IRPIMS) <b>?</b>	
Date/Time Drilling Started <b>11/11/97</b>		Date/Time Total Depth Reached <b>11/11/97 1102</b>		Total Drilled Depth <b>35.5'</b>			
Type of Sampling Device				Water Level (bgs) First <b>15'</b> Final			
Sample Hammer Type _____ Driving Wt. _____ Drop _____				Hydrogeologist <b>B. Chavez</b>		Checked by/Date	

Location Description (include sketch in field logbook)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
0917			5.5 5.4	(1-5) SAND (Sp) 10gr 5/4 yellowish brown, poorly sorted, low density, loose, low plasticity, trace pebbles, very fine grained, moist	Sp		M	Ø
0921			4.3 2.2	(3-5) As above material, trace of rootlets	Sp		M	Ø
0930			2.1 1.2	(5-7) SAND (Sp) 10gr 5/4 yellowish brown, fine grained, moist	Sp		M	Ø
0932			3.4 6	(7-9) SAND (Sp) 10gr 6/3 pale brown, poorly sorted, low density, low plasticity, fine grained	Sp		M	Ø
0935			4.5 5.5	(9-11) Same as above material, moist	Sp		M	Ø
0941			3.4 6.1	(11-13) Same as above material, moist	Sp		M	Ø
0943			4.7 11.12	(13-15) Same as above material, 10gr 6/4 light yellowish brown, wet at 15'	Sp		M W	Ø
0950			2.6 10.6	(15-17) Same as above material, 10gr 2.5/3 brown, saturated	Sp		W	Ø
0955			2.6 11.4	(17-19) Same as above material, some rounded, subangular pebbles - fine grained sand	Sp		W	Ø
0959			3.5 8.8	(19-21) (19-20) Same as above (20-21) SAND (SW) fine sand, loose with fine sands, low to medium density, low plasticity, saturated	Sp Sw		W	Ø

# BORING LOG

Borehole ID: SS08B-S1  
 Sheet 2 of 2

Project Name <b>Pilot Test Well</b>			Project Number <b>021746</b>		LTCCODE (IRPMS)		Location <b>5' South of VE1/MP6</b>	
Drilling Company <b>American Environmental</b>			Driller <b>Ron Mathes</b>		Ground Elevation		Site ID <b>SS08B</b>	
Drilling Equipment <b>CME 75</b>			Drilling Method <b>9 1/4" 10 HSA</b>		Borehole Diameter <b>14"</b>		Total Drilled Depth <b>32.5' 35.5'</b>	
Type of Sampling Device —			Date/Time Drilling Started <b>11/11/97 0917</b>		Date/Time Total Depth Reached <b>11/11/97 1102</b>		<del>32.5'</del> <b>35.5'</b>	
Sample Hammer Type — Driving Wt. — Drop —			Water Level (bgs) First — Final —		Hydrogeologist <b>B. Chavez</b>		Checked by/Date —	
Location Description (include sketch in field logbook)								

Depth	Interval	Recovery	Blow Counts	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name &amp; notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Lithology	Water Content	Remarks <small>(Include all sample types &amp; depth, odor, organic vapor measurements, etc.)</small>
1011			2.5 6, 10	(21-23) SAND(SW) fine sand to medium (1.5mm) subrounded to subrounded, loose, low plasticity, wet	SW		W	0.4
1013			2.4 7, 11	(23-25) Same as above material	SW		W	0
1021			2.3 7, 17	(25-27) None in spoon	SW		W	0
1030			1.1 6, 12	(27-29) Same as Interval 21-23.	SW		W	0
1039			1.4 6, 13	(29-31) Same as above material	SW		W	0
1057			1.1 6, 12	(31-33) no recovery				
			1.3 6, 11	(33-35) None in spoon				
				end of boring				

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

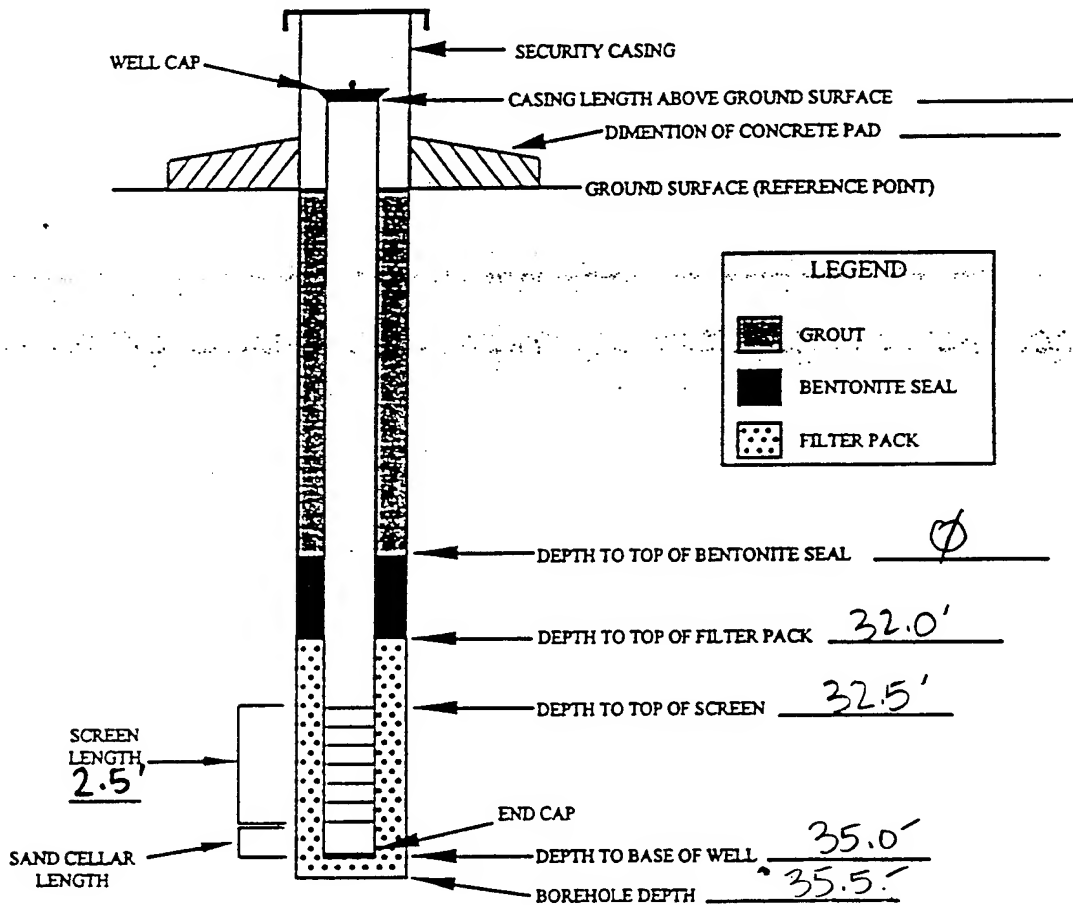
FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 20  
 DRILLING TECHNIQUE: CME 75 TYPE OF BENTONITE: Pure Gold  
 AUGER SIZE AND TYPE: 1 1/4" 10 HSA AMOUNT BENTONITE USED: 24  
 BOREHOLE IDENTIFICATION: SS08-S1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 8" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08-S1 GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/11/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/11/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_

SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 1" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 32.5-35

CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 1"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: MJE (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS08B-MP1  
Sheet 1 of 1

Project Name <b>Pilot Test Well</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>5' West of SS08B-VE1</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathew</b>		Ground Elevation		Site ID <b>SS08B</b>	
Drilling Equipment <b>CME 75</b>		Drilling Method <b>9 1/4" IDHSA</b>		Borehole Diameter <b>14"</b>		Total Drilled Depth <b>32.5'</b>	
Date/Time Drilling Started <b>11/12/97 0830</b>		Date/Time Total Depth Reached <b>11/12/97 1215</b>		Date/Time Drilling Started <b>11/12/97 0830</b>		Date/Time Total Depth Reached <b>11/12/97 1215</b>	
Type of Sampling Device		Water Level (bgs)		First		Final	
Sample Hammer		Hydrogeologist <b>B. Chavez</b>		Checked by/Date			
Type		Driving Wt.		Drop			
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content (Include all sample types & depth, odor, organic vapor measurements, etc.)
				(0-5) SAND (Sp) 10 gr 5/4 yellowish brown medium to fine grained, loose poorly sorted, some rounded, few pebbles	Sp		0
			5-15	Same as above material moist/ wet	Sp	M-W	0
			15-20	Same as above material 10 gr 5/3 brown	Sp	N	0
			20-30	Same as above material wet	Sp	W	0
			30-32.5	Same as above material	Sp	W	0



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: fine sand

AMOUNT OF FILTER PACK USED: 6

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 6

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

WELL CONSTRUCTION COMPLETE DATE: 11/12/97

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

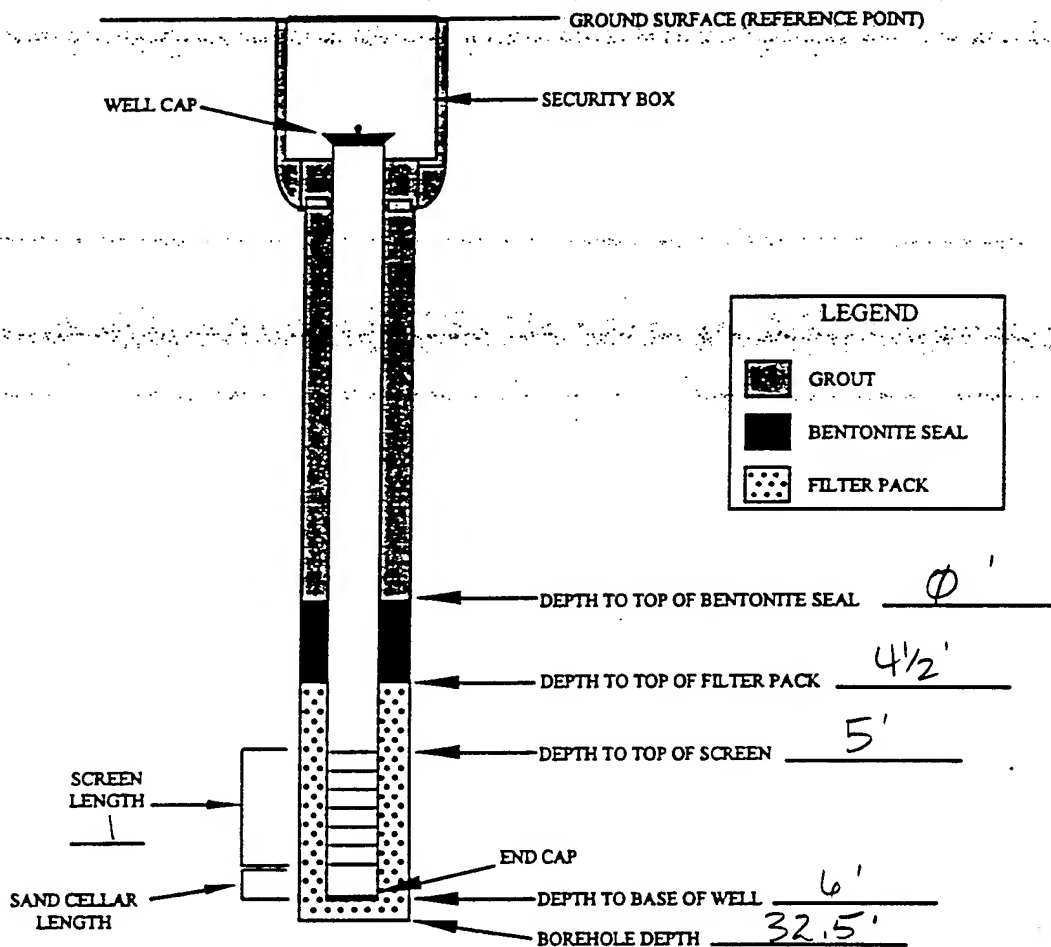
STRATUM-SCREENED INTERVAL (FT): 5-6

COMMENTS:

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: fine  
AMOUNT OF FILTER PACK USED: 4

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 6

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97

WELL CONSTRUCTION COMPLETE DATE: 11/12/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

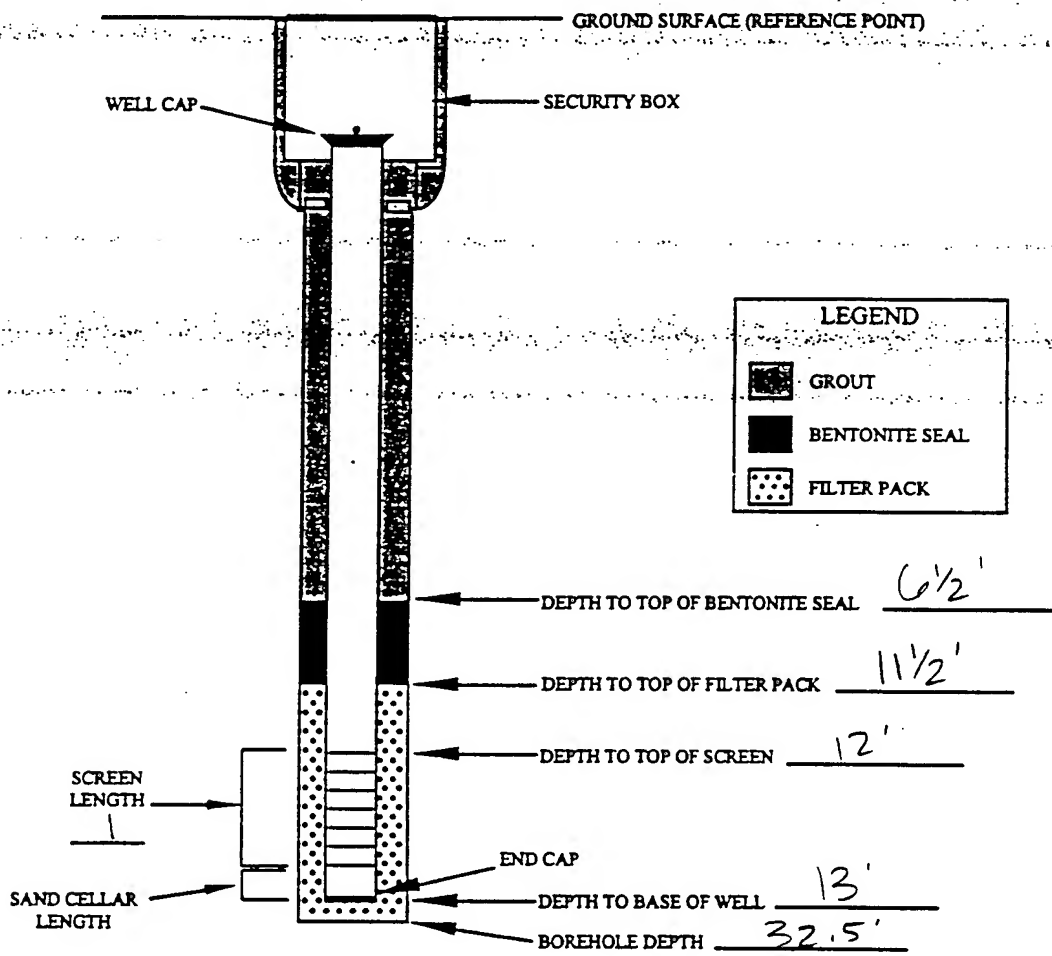
STRATUM-SCREENED INTERVAL (FT): 12-13

COMMENTS:

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand

GRADATION: #5  
DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 6

DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 7

BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/17/97

WELL CONSTRUCTION COMPLETE DATE: 11/17/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

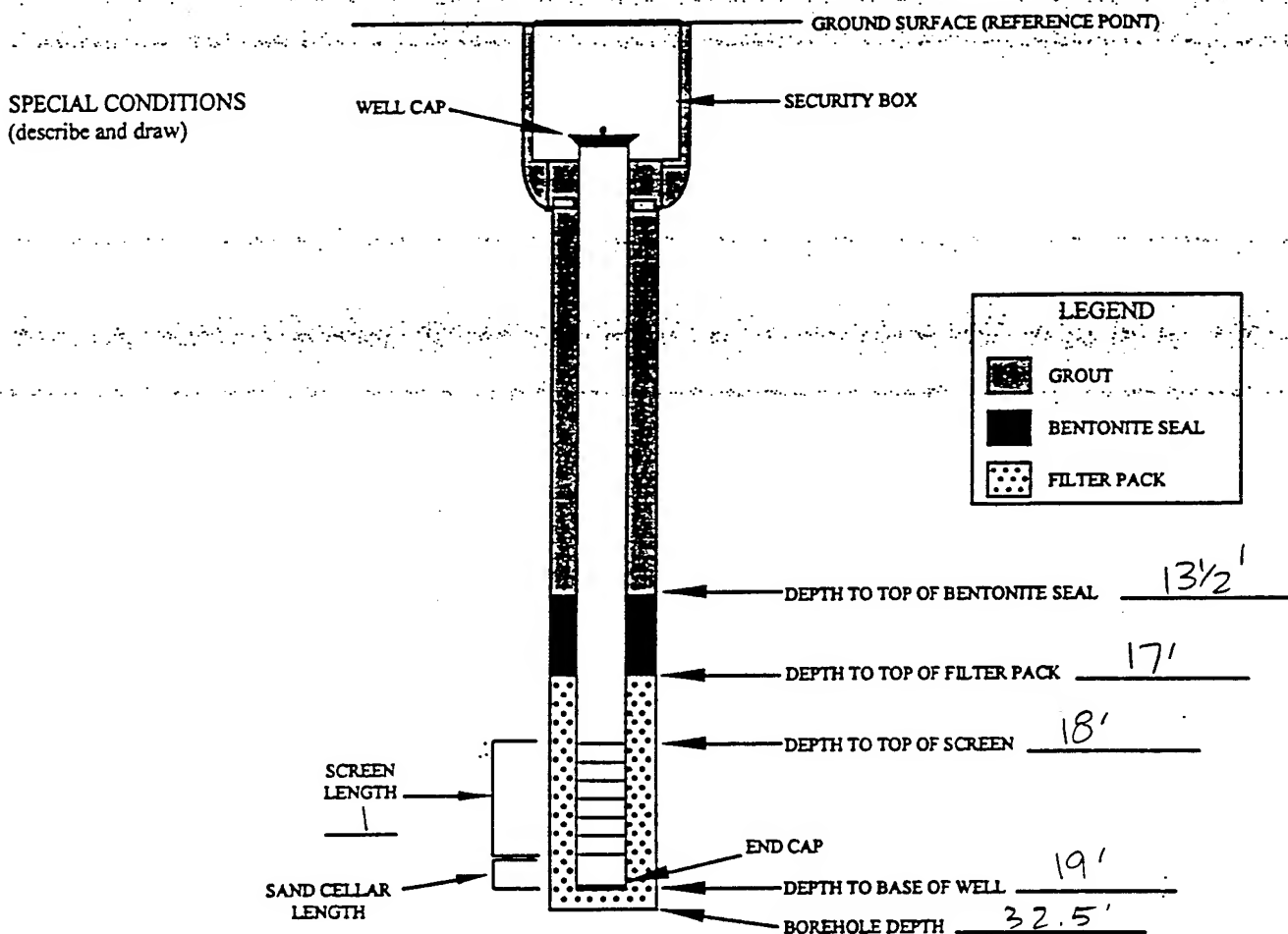
SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 18-19

CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_

CASING DIAMETER: 3/4"



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5  
AMOUNT OF FILTER PACK USED: 6

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Mold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

AMOUNT BENTONITE USED: 6

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97

WELL CONSTRUCTION COMPLETE DATE: 11/12/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

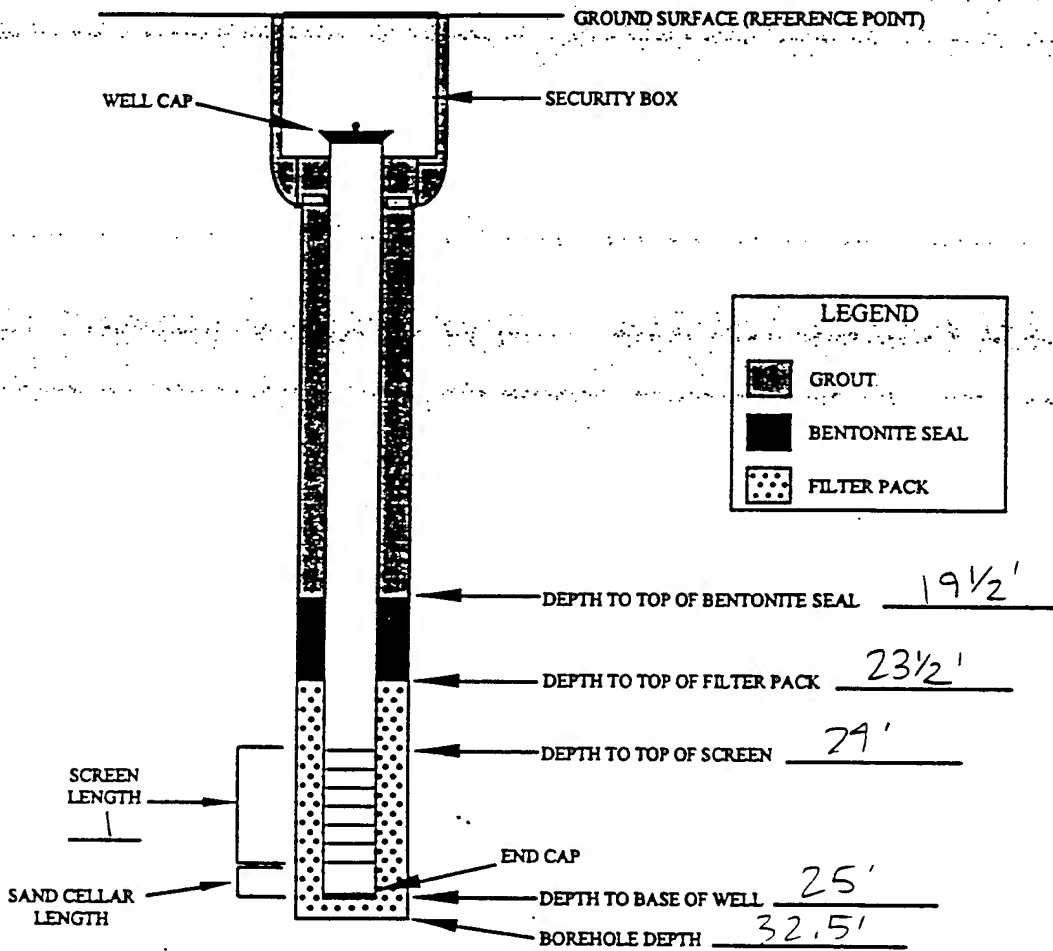
STRATUM-SCREENED INTERVAL (FT): 24-25'

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 4

DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
 AUGER SIZE AND TYPE: 9 1/4" 10 HSA AMOUNT BENTONITE USED: 7

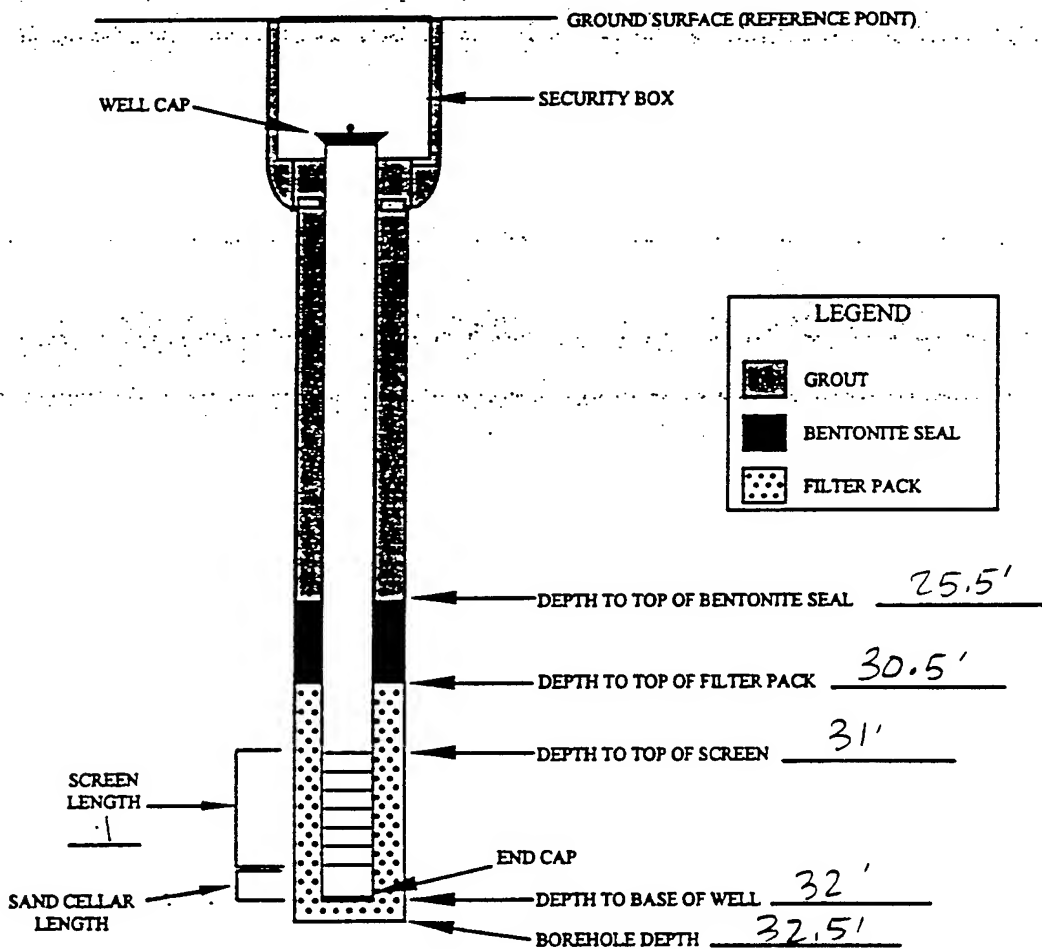
BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/12/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 31-32

CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS08B-MP2  
 Sheet 1 of 1

Project Name <b>Pilot Test Well</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>10' North of SS08B-Ve1</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Mathew</b>		Ground Elevation		Site ID <b>SS08B</b>	
Drilling Equipment <b>CHE 75</b>		Drilling Method <b>9 1/4" IDHSA</b>		Borehole Diameter <b>14"</b>		Total Drilled Depth <b>32.5'</b>	
Date/Time Drilling Started <b>11/12/97 1410</b>		Date/Time Total Depth Reached <b>11/12/97 1800</b>		32.5'			
Type of Sampling Device		Water Level (bgs)		First		Final	
Sample Hammer		Hydrogeologist <b>B. Chavez</b>		Checked by/Date			
Type		Driving Wt.		Drop			
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content
				SAND(sp) 102 JK 5/4 yellowish brown, poorly graded, 100% sand, trace pebbles. Sub-rounded, very fine grained.	Sp	M	Ø
				Same as above material 102 JK 4/3 pale brown	Sp M		Ø
				(10-15)			
				15-20 Same as above material 102 JK 4/4 light yellowish brown	Sp	N	Ø
				(20-32.5)			
				Same as above material		W	Ø
				END OF BORING 32.5'			

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

MP2A

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: fine  
AMOUNT OF FILTER PACK USED: 4

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Goid / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 5

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: 7

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/21/97

WELL CONSTRUCTION COMPLETE DATE: 11/21/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

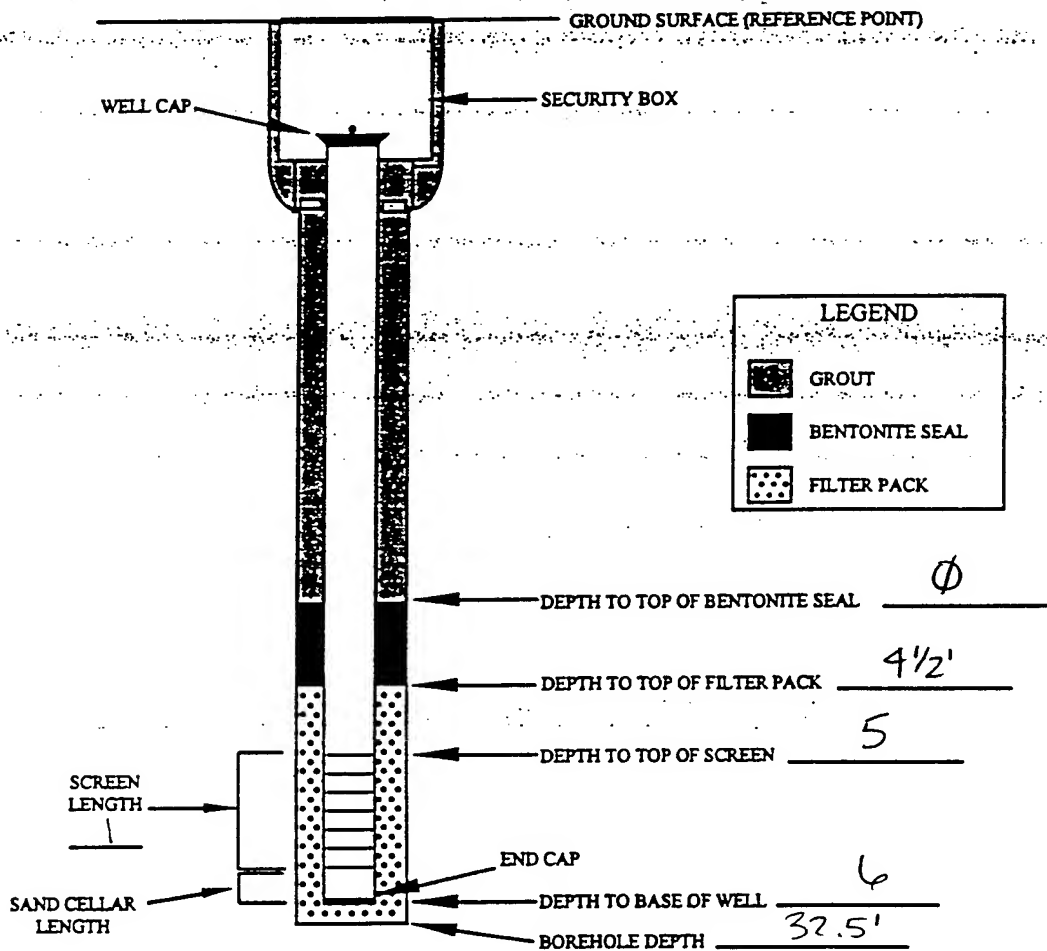
STRATUM-SCREENED INTERVAL (FT): 5-6

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Hetcoff & Fedy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: Fine

AMOUNT OF FILTER PACK USED: 4

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gald / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 5

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97

WELL CONSTRUCTION COMPLETE DATE: 11/12/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

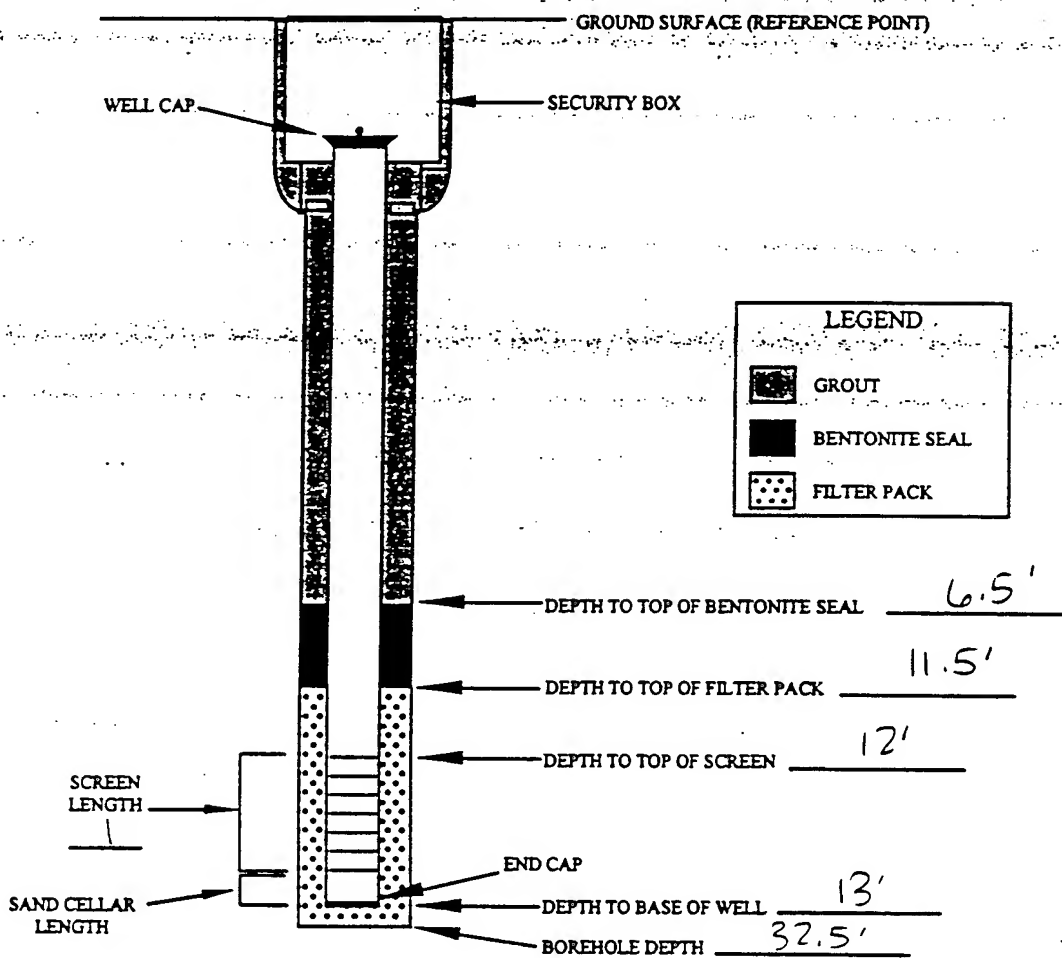
STRATUM-SCREENED INTERVAL (FT): 12-13

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5  
AMOUNT OF FILTER PACK USED: 1

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug  
AMOUNT BENTONITE USED: 2

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

BOREHOLE IDENTIFICATION: 55088-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: 55088-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97

WELL CONSTRUCTION COMPLETE DATE: 11/12/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

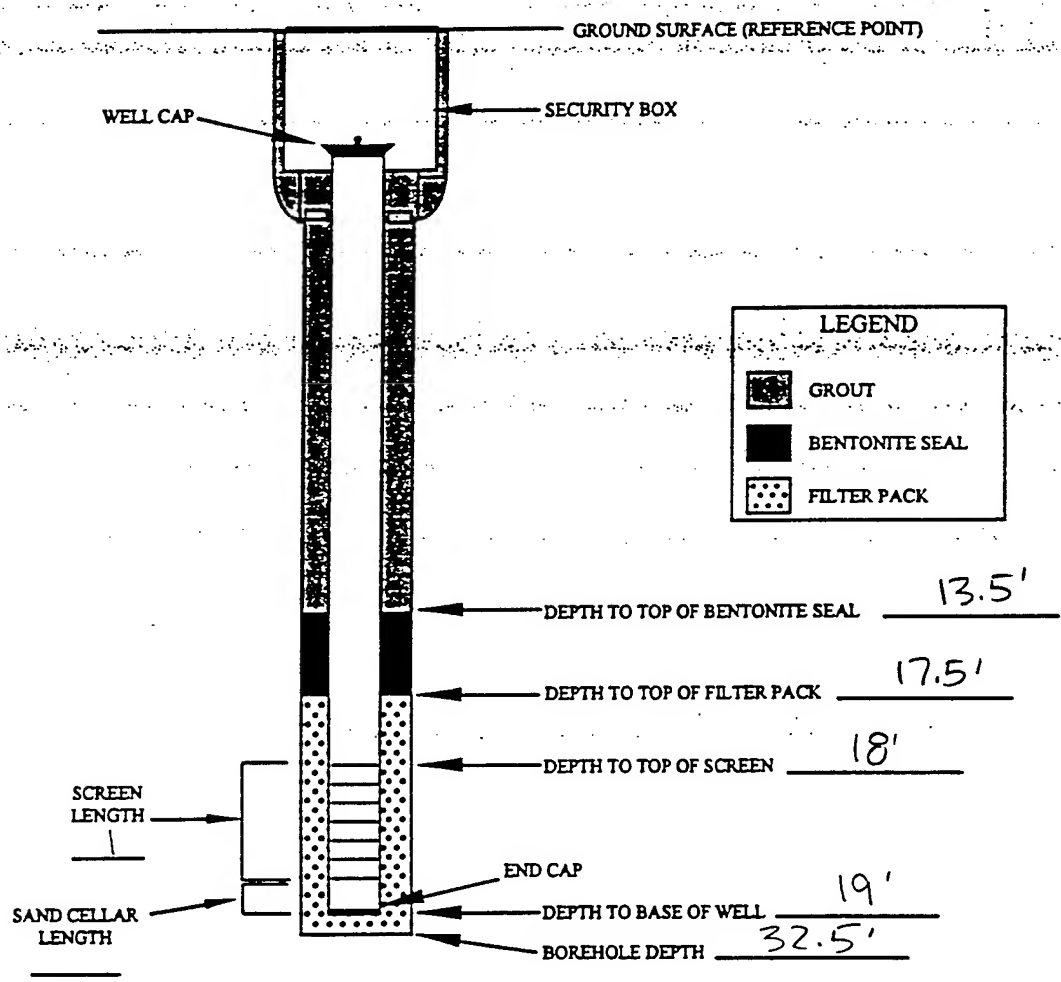
STRATUM-SCREENED INTERVAL (FT): 18-19'

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3

DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 4

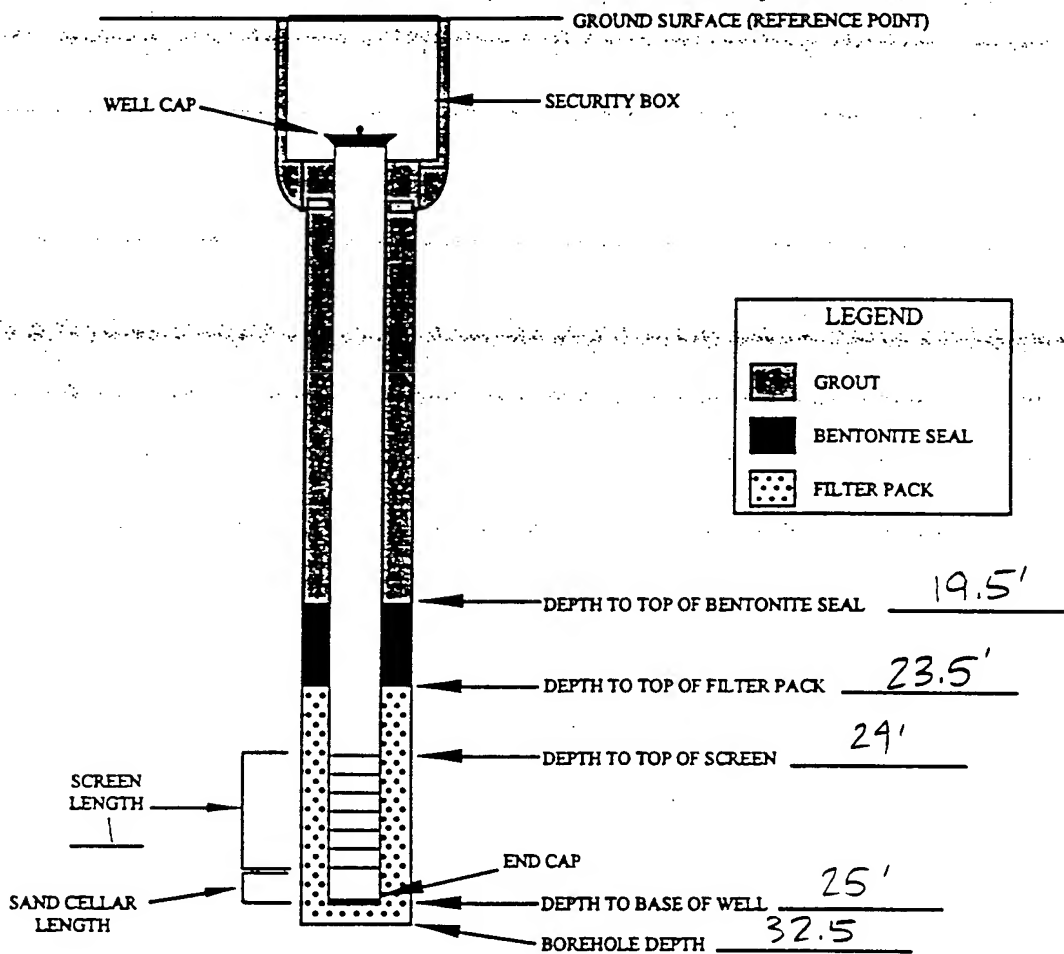
BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/14/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 24-25

CASING MATERIAL: PVC schedule 40  
 COMMENTS:  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
 (describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
GRADIATION: #5  
DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3

DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 4

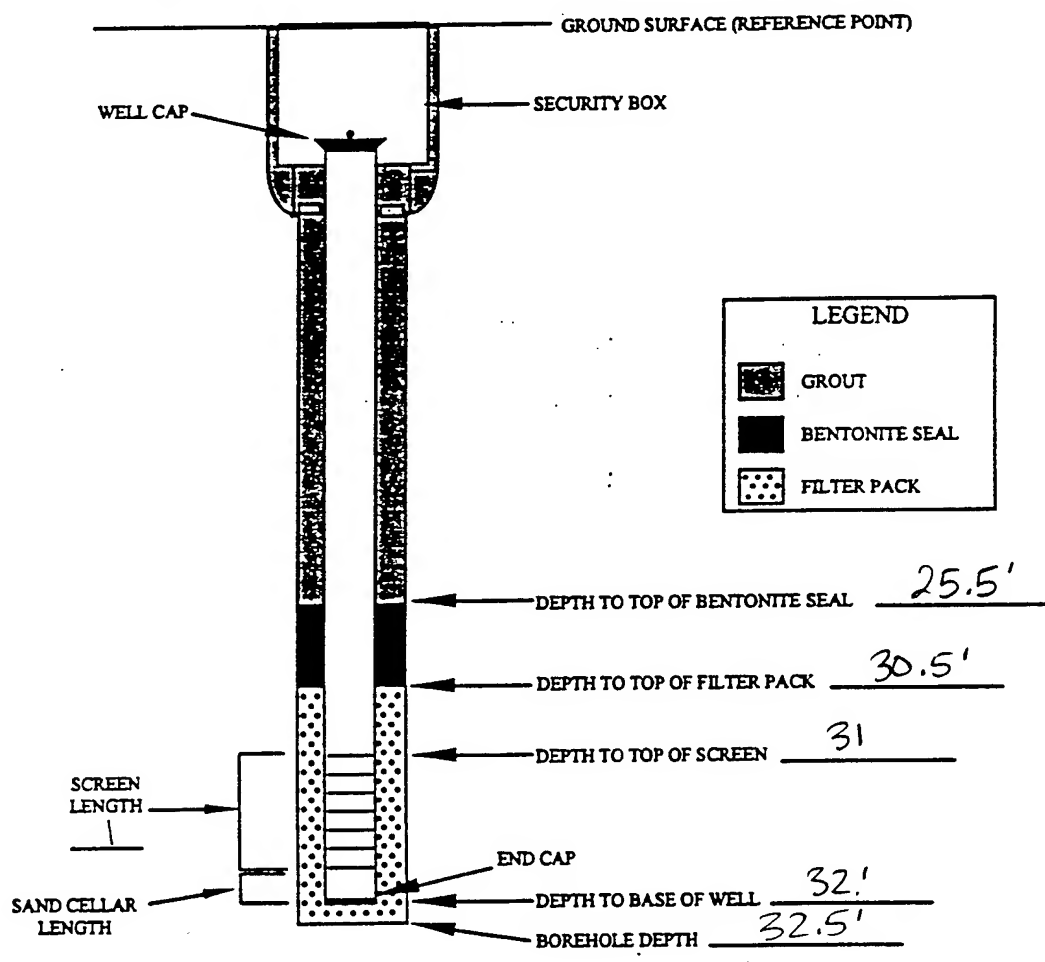
BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_  
BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/12/97  
WELL CONSTRUCTION COMPLETE DATE: 11/14/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
STRATUM-SCREENED INTERVAL (FT): 31-32

CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# BORING LOG

Borehole ID: SS08B-MP3  
Sheet 1 of 1

Project Name <u>Pilot Test Well</u>		Project Number <u>021746</u>		LTCCODE (IRPIMS)		Location <u>15' E OF VE1</u>	
Drilling Company <u>American Environmental</u>		Driller <u>Ron Hather</u>		Ground Elevation		Total Drilled Depth <u>25 1/2'</u>	
Drilling Equipment <u>CME 75</u>		Drilling Method <u>9 1/4" 10HSA</u>		Borehole Diameter <u>14"</u>		Date/Time Drilling Started <u>11/13/97 1044</u>	
Type of Sampling Device		Water Level (bgs)		Date/Time Total Depth Reached <u>11/13/97 1016 25 1/2'</u>			
Sample Hammer		First		Final			
Type		Driving Wt.		Drop		Hydrogeologist <u>B. Chavez</u>	
						Checked by/Date	
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Remarks (include all sample types & depth, odor, organic vapor measurements, etc.)
				SAND (Sp) 10 1/2 5/4 yellowish-brown, poorly graded, low dens., low plasticity, loose, very fine grained trace of pebbles. moist.	Sp	M	Ø
				(10-15) Same as above material 10 1/2 5/3 pale brown	Sp	M	Ø
				(15-25.5) Same as above material 10 1/2 5/3 brown.	Sp	M-W	Ø
				END OF BORING 25.5'			

## WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. ChavezTYPE OF FILTER PACK: global sandDRILLING CONTRACTOR: American EnvironmentalGRADATION: #5DRILLING TECHNIQUE: CME75TYPE OF BENTONITE: Pure Goid / HoleplugAUGER SIZE AND TYPE: 9 1/4" ID HSAAMOUNT BENTONITE USED: 4BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97WELL CONSTRUCTION COMPLETE DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

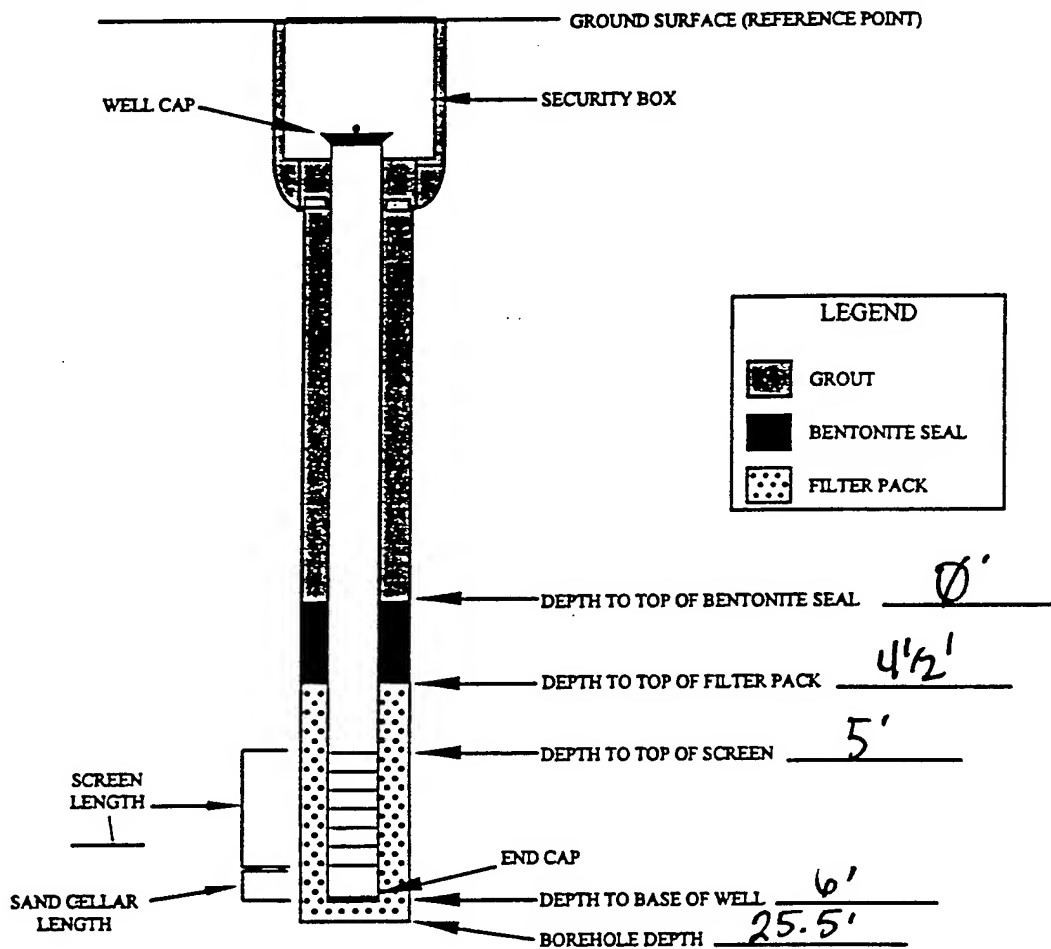
TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

STRATUM-SCREENED INTERVAL (FT): 5-6

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40CASING DIAMETER: 3/4"SPECIAL CONDITIONS  
(describe and draw)

NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

SS08B-MP3E

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gild / Holeplug

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

AMOUNT BENTONITE USED: 3

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97

WELL CONSTRUCTION COMPLETE DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

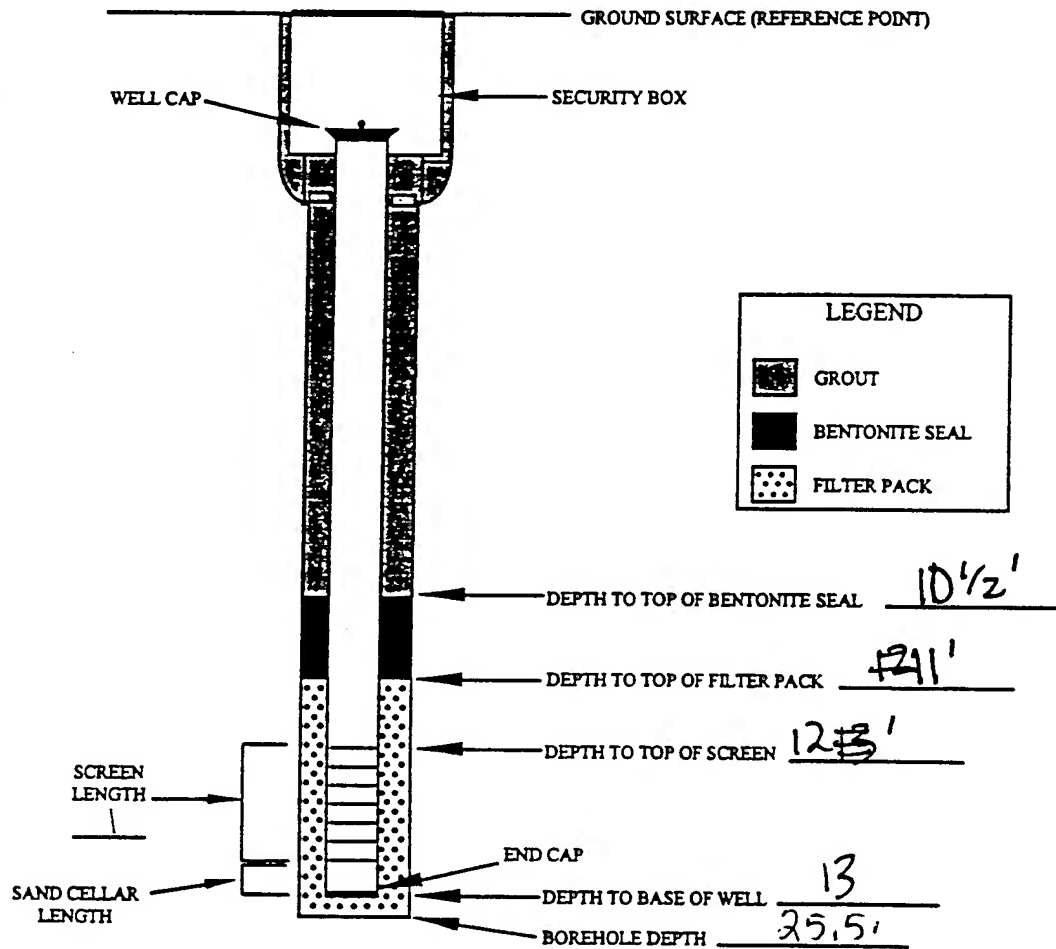
STRATUM-SCREENED INTERVAL (FT): 12-13

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

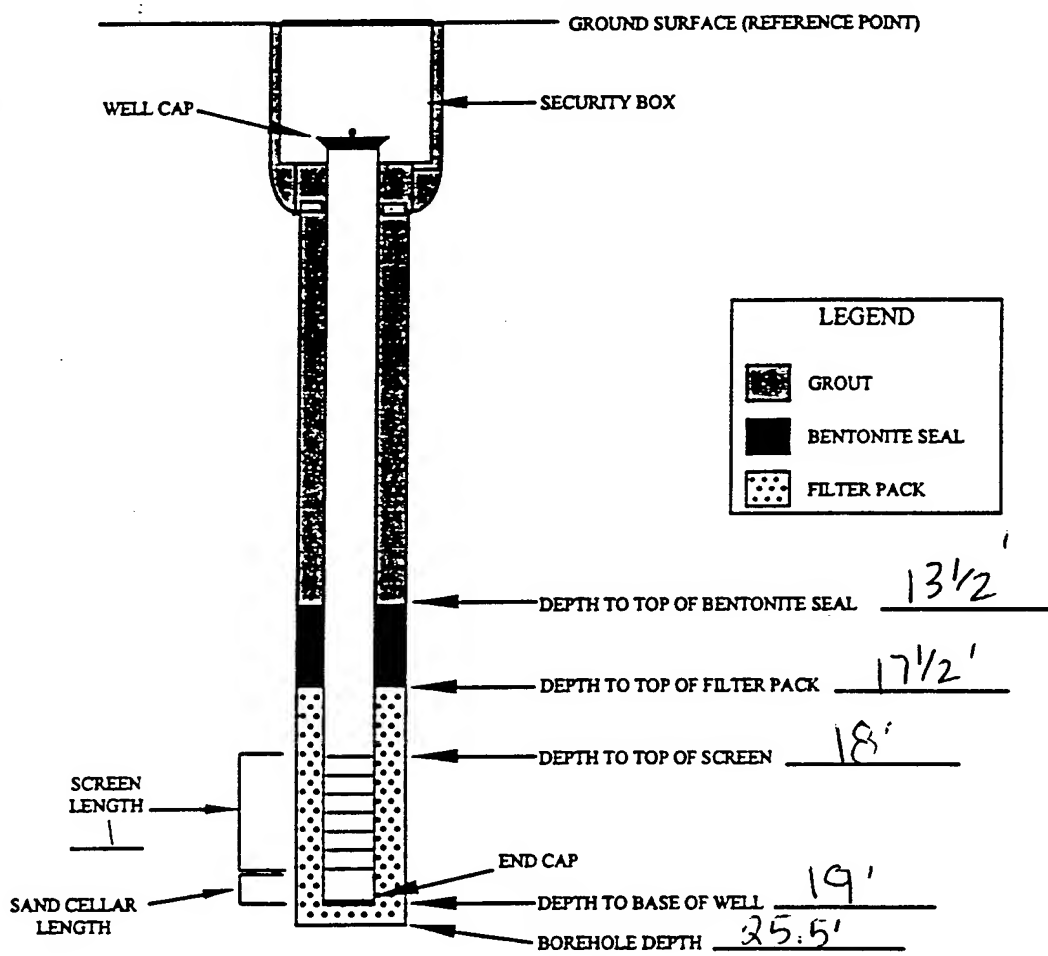
INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 1  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 3  
 BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/13/17  
 WELL CONSTRUCTION COMPLETE DATE: 11/13/17 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 18-19  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

SS08B-  
MF3D

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADIATION: #5  
AMOUNT OF FILTER PACK USED: 1 1/2

DRILLING TECHNIQUE: CME75  
AUGER SIZE AND TYPE: 9 1/4" ID HSA

TYPE OF BENTONITE: Pure Gold / Holeplug  
AMOUNT BENTONITE USED: 3

BOREHOLE IDENTIFICATION: SS08B-MP  
BOREHOLE DIAMETER: 1 1/4"  
WELL IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_  
AMOUNT CEMENT USED: \_\_\_\_\_  
GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97  
WELL CONSTRUCTION COMPLETE DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

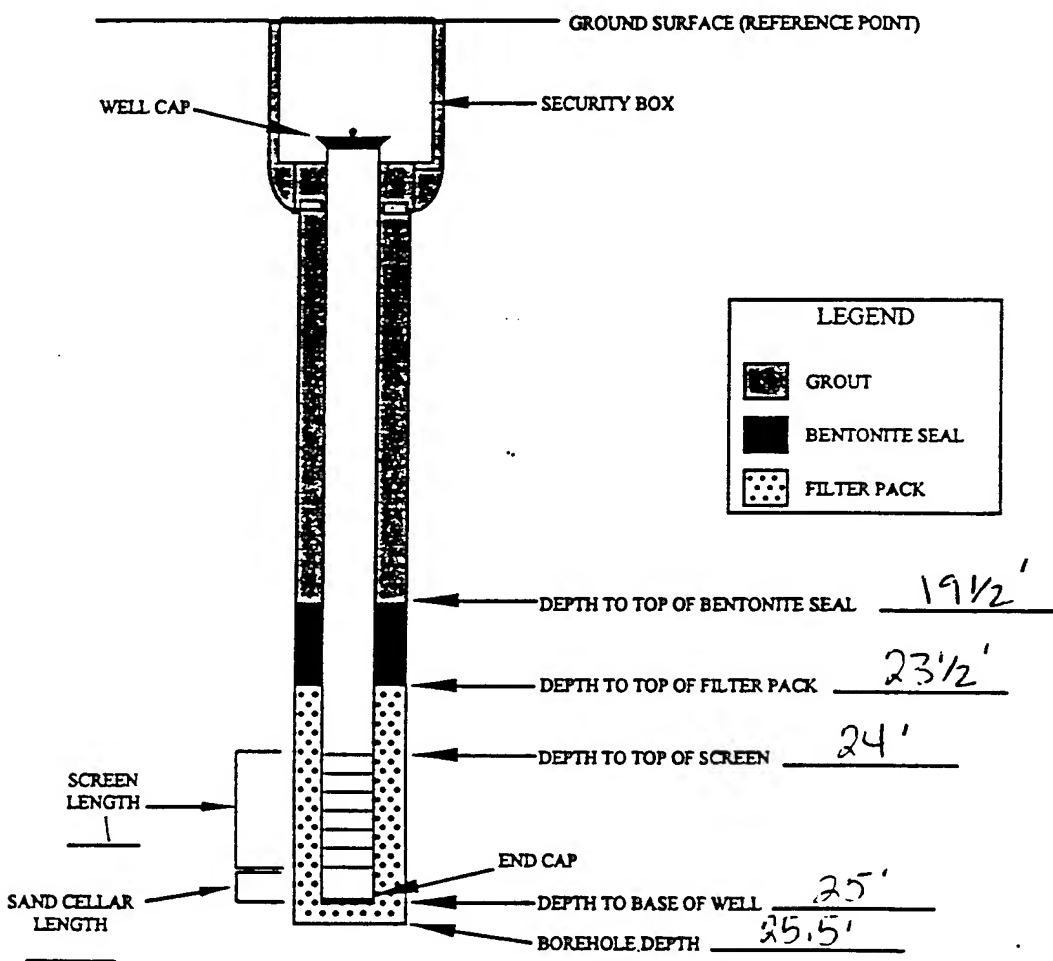
SCREEN MATERIAL: PVC Schedule 40  
SCREEN DIAMETER: 3/4"  
STRATUM-SCREENED INTERVAL (FT): 24-25

TYPE OF WELL CAP: \_\_\_\_\_  
TYPE OF END CAP: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40  
CASING DIAMETER: 3/4"

COMMENTS:

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_



# BORING LOG

Borehole ID: SS08B-MP4  
Sheet 1 of 1

Project Name <b>Pilot Test Well</b>		Project Number <b>021746</b>		LTCCODE (IRPIMS)		Location <b>25' South of VE 1</b>	
Drilling Company <b>American Environmental</b>		Driller <b>Ron Hather</b>		Ground Elevation		Site ID <b>SS08B</b>	
Drilling Equipment <b>CME 75</b>		Drilling Method <b>9 1/4" IDHSA</b>		Borehole Diameter <b>14"</b>		Total Drilled Depth <b>25.5'</b>	
Date/Time Drilling Started <b>11/13/97 1635</b>		Date/Time Total Depth Reached <b>11/13/97 1635</b>		Date/Time Drilling Started <b>11/13/97 1635</b>		Date/Time Total Depth Reached <b>25.5'</b>	
Type of Sampling Device		Water Level (bgs)		First		Final	
Sample Hammer		Hydrogeologist <b>B. Chavez</b>		Checked by/Date			
Type		Driving Wt.		Drop			
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content (Include all sample types & depth, odor, organic vapor measurements, etc.)
0-10				SAND (Sp) 10gr 5/4 yellowish brown, poorly graded, low density, loose, low plasticity, very fine grained, trace of pebbles.	Sp	M	0
10-15				Same as above material 10gr 4/3 pale brown	Sp	M	0
15-25				Same as above material 10gr 5/3 brown	Sp	M-W	0

SS08B-  
MP4A

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5

AMOUNT OF FILTER PACK USED: 2

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

AMOUNT BENTONITE USED: 3

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 1 1/4"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/57

WELL CONSTRUCTION COMPLETE DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

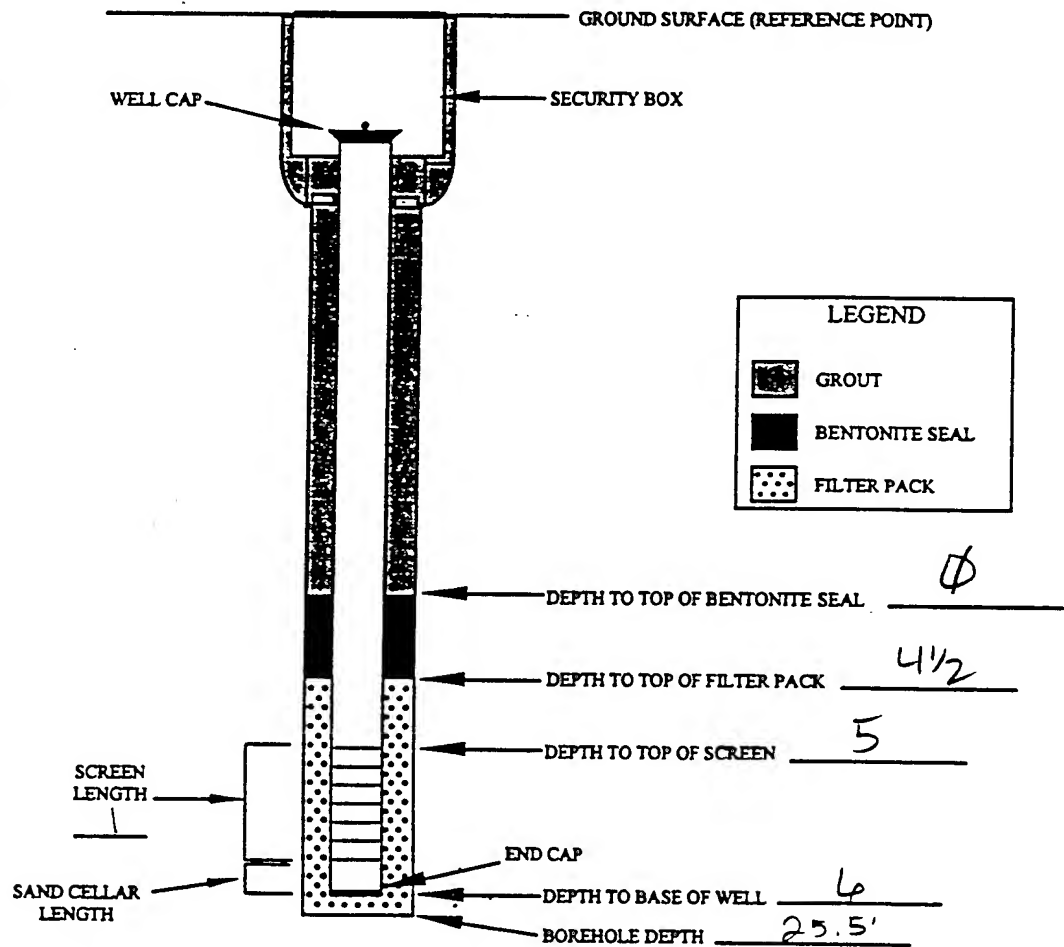
STRATUM-SCREENED INTERVAL (FT): 5-6

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

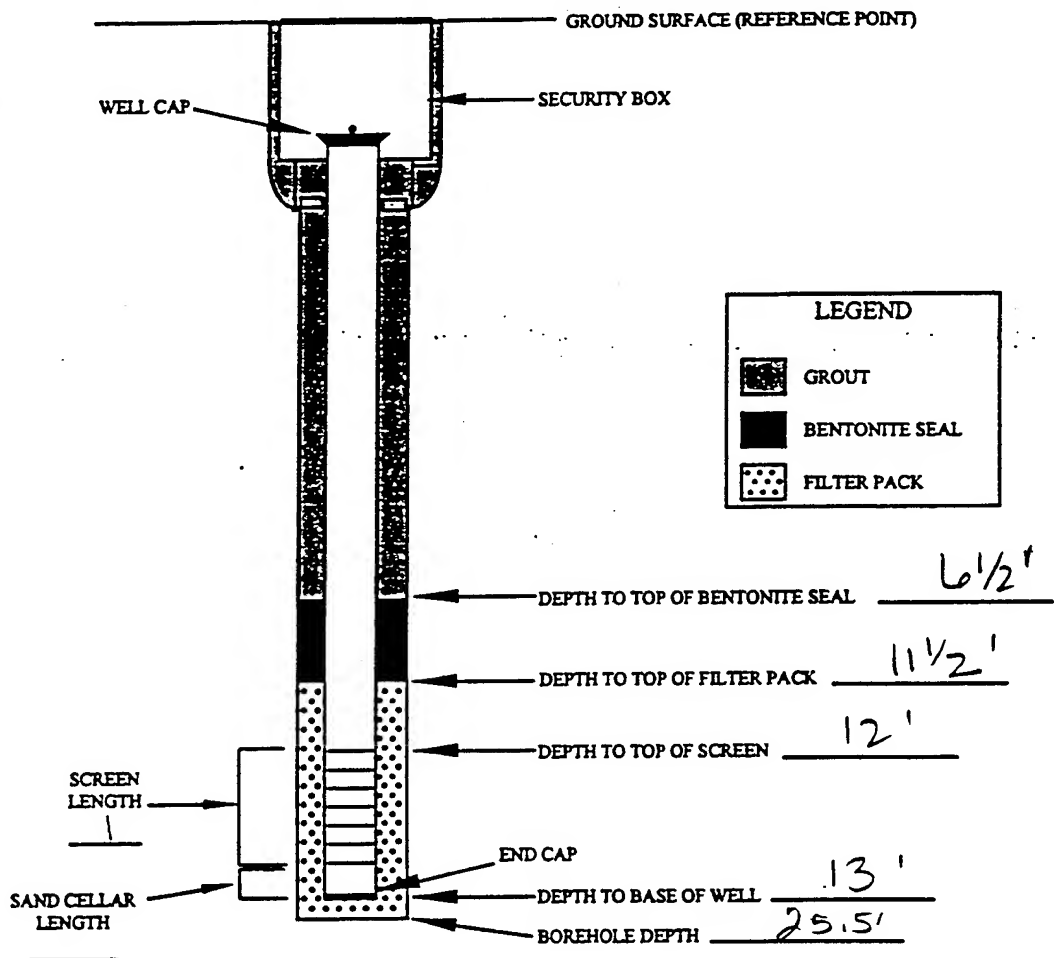
DISCREPANCIES: \_\_\_\_\_

SS08B  
mp48

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
GRADIATION: #5  
DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 4  
DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
AUGER SIZE AND TYPE: 9 1/4" 10 HSA AMOUNT BENTONITE USED: 5  
BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: -  
BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: -  
WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: -  
WELL CONSTRUCTION START DATE: 11/13/97 DIMENSIONS OF SECURITY BOX: -  
WELL CONSTRUCTION COMPLETE DATE: 11/13/97  
SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: -  
SCREEN DIAMETER: 3/4" TYPE OF END CAP: -  
STRATUM-SCREENED INTERVAL (FT): 12-13 COMMENTS: -  
CASING MATERIAL: PVC schedule 40  
CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)  
DISCREPANCIES: -

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5  
AMOUNT OF FILTER PACK USED: 2

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 2

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97

WELL CONSTRUCTION COMPLETE DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

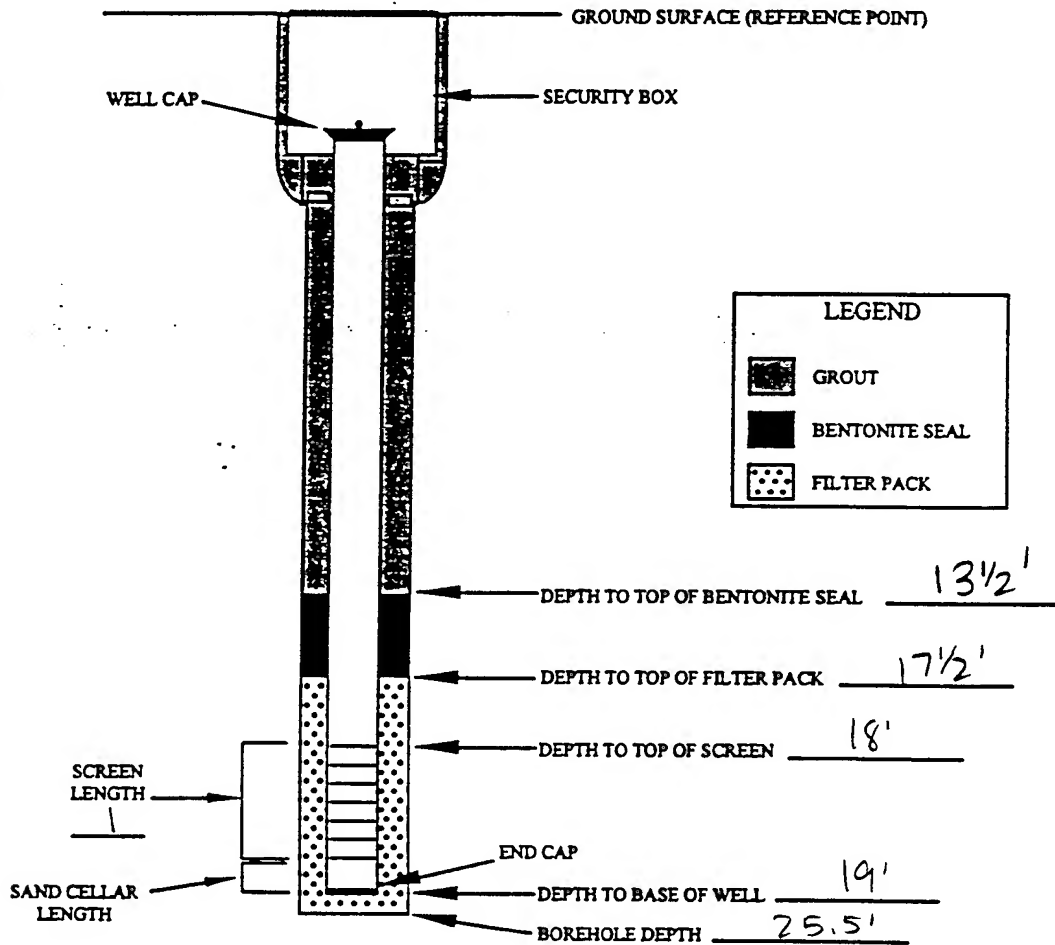
STRATUM-SCREENED INTERVAL (FT): 18-19

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holeplug

AUGER SIZE AND TYPE: 9 1/4" ID HSA

AMOUNT BENTONITE USED: 4

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT:

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: 7

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED:

WELL CONSTRUCTION START DATE: 11/13/97

DIMENSIONS OF SECURITY BOX:

WELL CONSTRUCTION COMPLETE DATE: 11/13/97

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP:

SCREEN DIAMETER: 3/4"

TYPE OF END CAP:

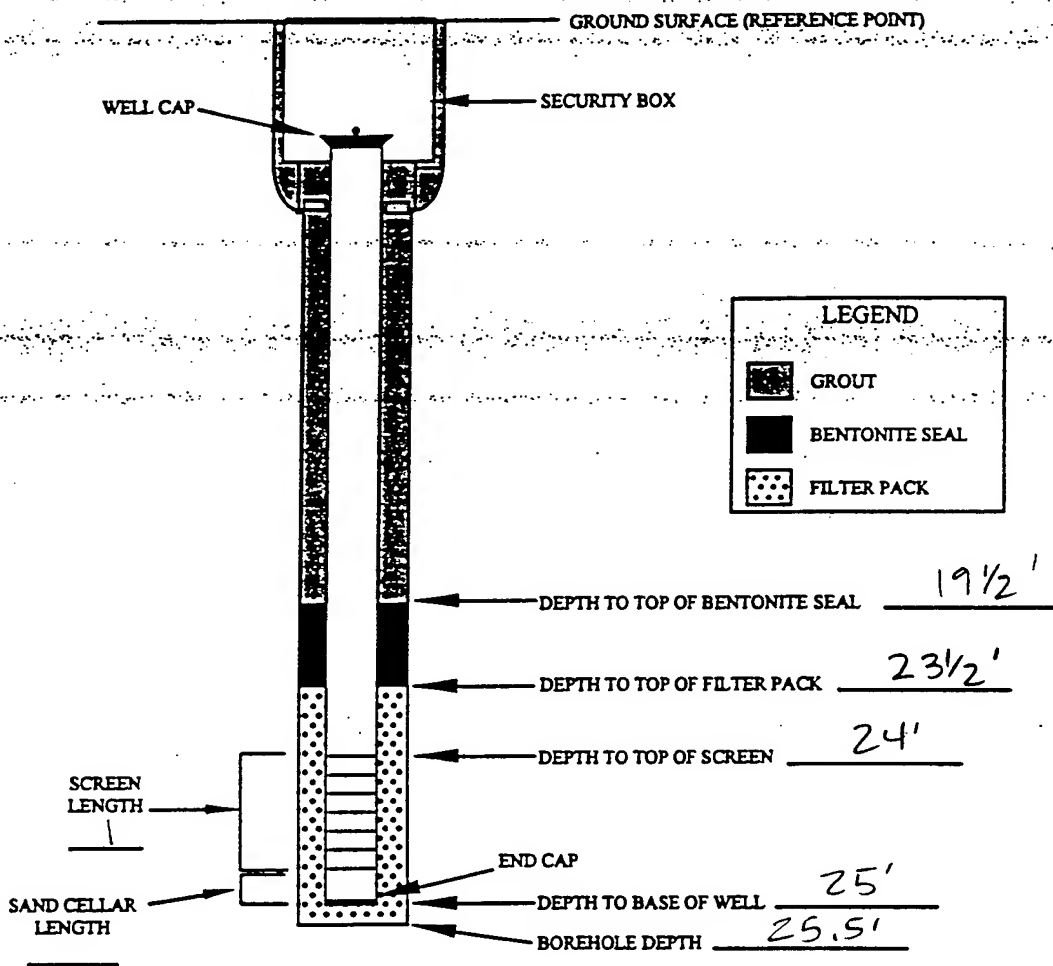
STRATUM-SCREENED INTERVAL (FT):

COMMENTS:

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



INSTALLED BY: American Environmental

INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES:

# BORING LOG

Borehole ID: SS08B-MP5  
Sheet 1 of 1

Project Name <u>Pilot Test Well</u>		Project Number <u>021746</u>		LTCCODE (IRPIMS)		Location <u>40' E of VE1</u>	
Drilling Company <u>American Environmental</u>		Driller <u>Ron Hatcher</u>		Ground Elevation		Site ID <u>SS08B</u>	
Drilling Equipment <u>CME 75</u>		Drilling Method <u>9 1/4" DHSA</u>		Borehole Diameter <u>14"</u>		Total Drilled Depth <u>25.5'</u>	
Date/Time Drilling Started <u>11/13/97 0944</u>		Date/Time Total Depth Reached <u>11/13/97 1014</u>		25.5'			
Type of Sampling Device				Water Level (bgs)			
				First			
				Final			
Sample Hammer				Hydrogeologist <u>B. Chavez</u>		Checked by/Date	
Type				Driving Wt.		Drop	
Location Description (include sketch in field logbook)							
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content (Include all sample types & depth, odor, organic vapor measurements, etc.)
				(0-10) SAND (Sp) 10YR 5/4 yellowish brown, poorly graded, low density, low plasticity, loose, v. fine grained, trace of pebbles, moist.	Sp	M	Ø
				(10-15) Same as above material 10YR 6/3 pale brown	Sp	M	Ø
				(15-25) Same as above material 10YR 5/3 brown	Sp	M-W	Ø

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5  
AMOUNT OF FILTER PACK USED: 2

DRILLING TECHNIQUE: CME75

TYPE OF BENTONITE: Pure Gold / Holoplug

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

AMOUNT BENTONITE USED: 7

BOREHOLE IDENTIFICATION: SS08B-MP

TYPE OF CEMENT: \_\_\_\_\_

BOREHOLE DIAMETER: 14"

AMOUNT CEMENT USED: \_\_\_\_\_

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97

WELL CONSTRUCTION COMPLETE DATE: 11/13/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

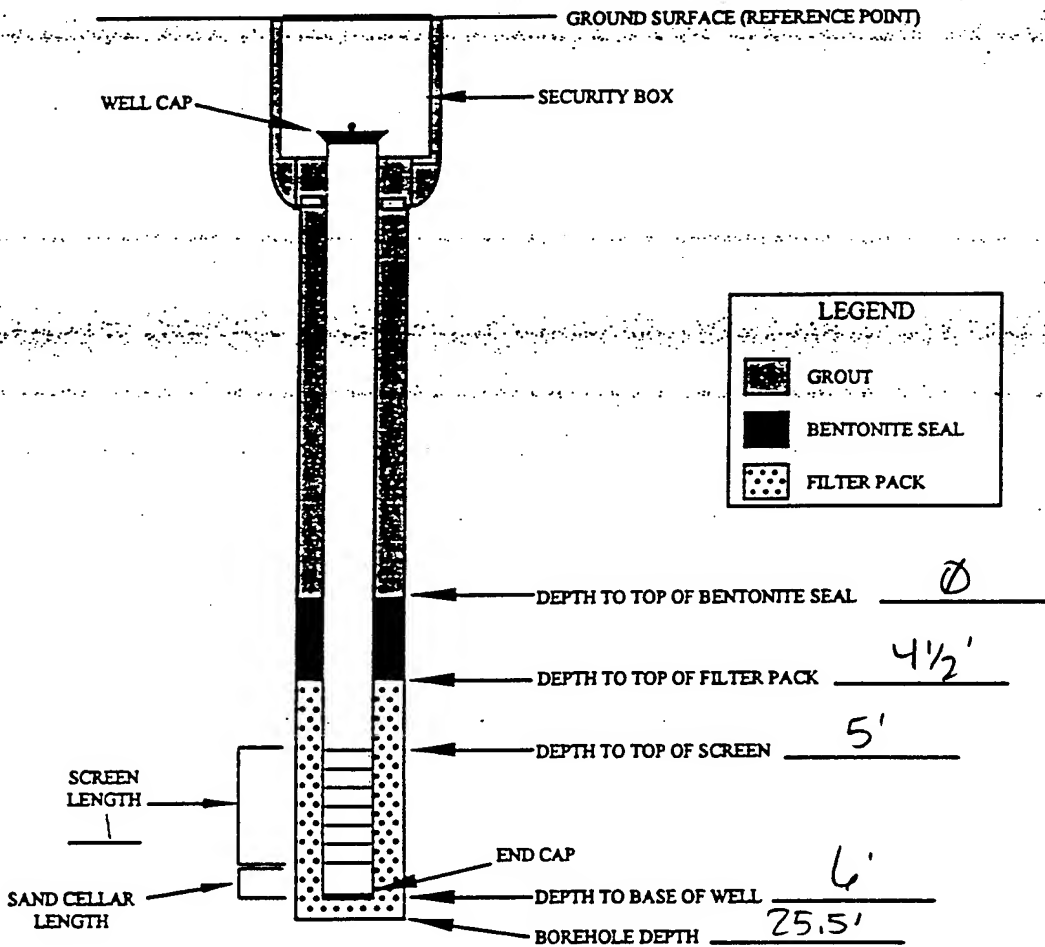
STRATUM-SCREENED INTERVAL (FT): 5-6'

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



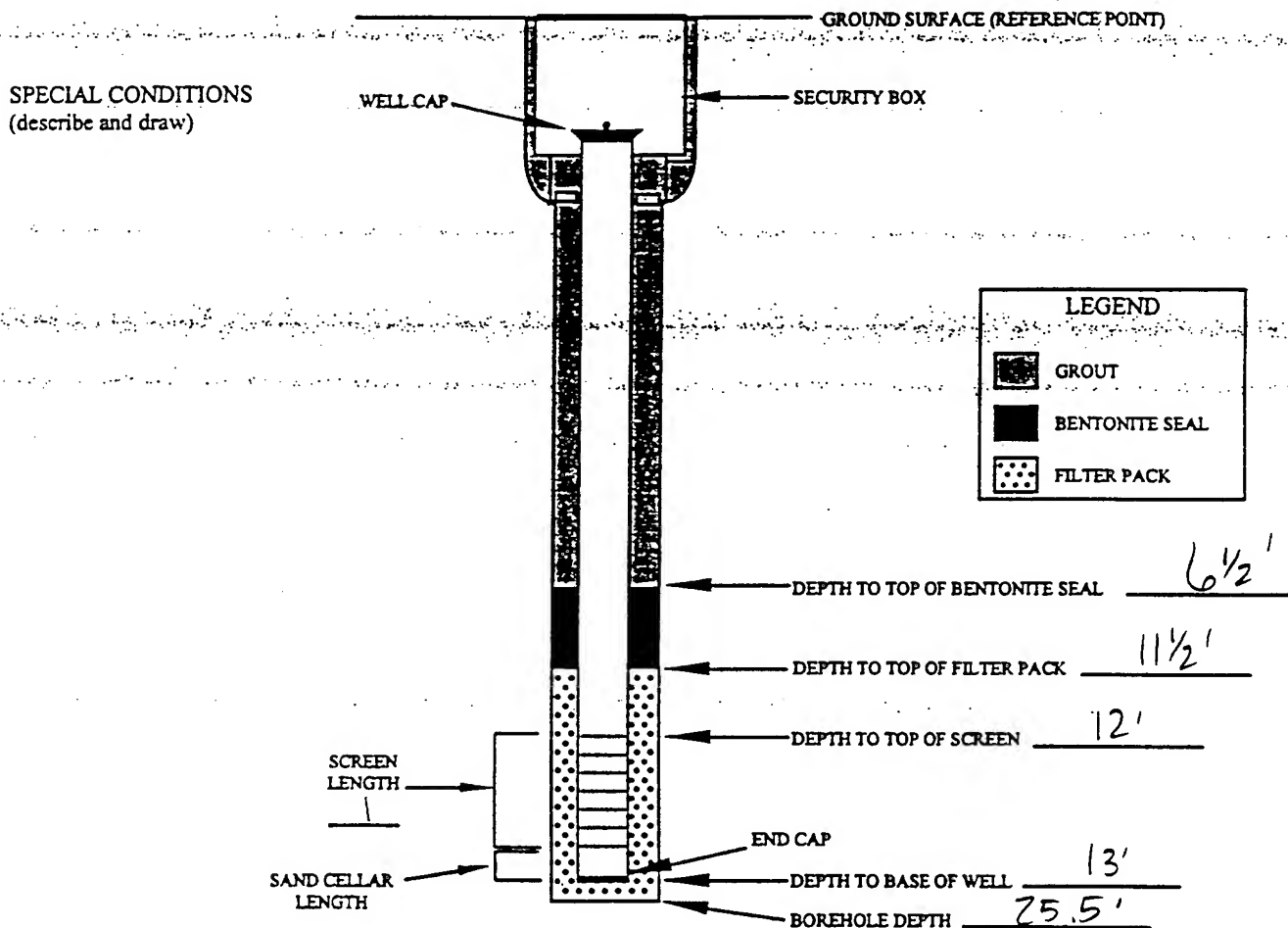
NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sands  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 4  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold / Holeplug  
 AUGER SIZE AND TYPE: 9 1/4" 10 HSA AMOUNT BENTONITE USED: 4  
 BOREHOLE IDENTIFICATION: SS08B-MP TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08B-MP GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/13/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_  
 WELL CONSTRUCTION COMPLETE DATE: 11/13/97  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 12-13  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_



# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SSOE3  
MP5C

FIELD REPRESENTATIVE: B. Chavez

TYPE OF FILTER PACK: global sand

DRILLING CONTRACTOR: American Environmental

GRADATION: #5

DRILLING TECHNIQUE: CME75

AMOUNT OF FILTER PACK USED: 3

AUGER SIZE AND TYPE: 9 1/4" 10 HSA

TYPE OF BENTONITE: Pure Gold / Holeplug

BOREHOLE IDENTIFICATION: SS08B-MP

AMOUNT BENTONITE USED: 6

BOREHOLE DIAMETER: 14"

WELL IDENTIFICATION: SS08B-MP

GROUT MATERIALS USED: \_\_\_\_\_

WELL CONSTRUCTION START DATE: 11/13/97

DIMENSIONS OF SECURITY BOX: \_\_\_\_\_

WELL CONSTRUCTION COMPLETE DATE: 11/13/97

SCREEN MATERIAL: PVC Schedule 40

TYPE OF WELL CAP: \_\_\_\_\_

SCREEN DIAMETER: 3/4"

TYPE OF END CAP: \_\_\_\_\_

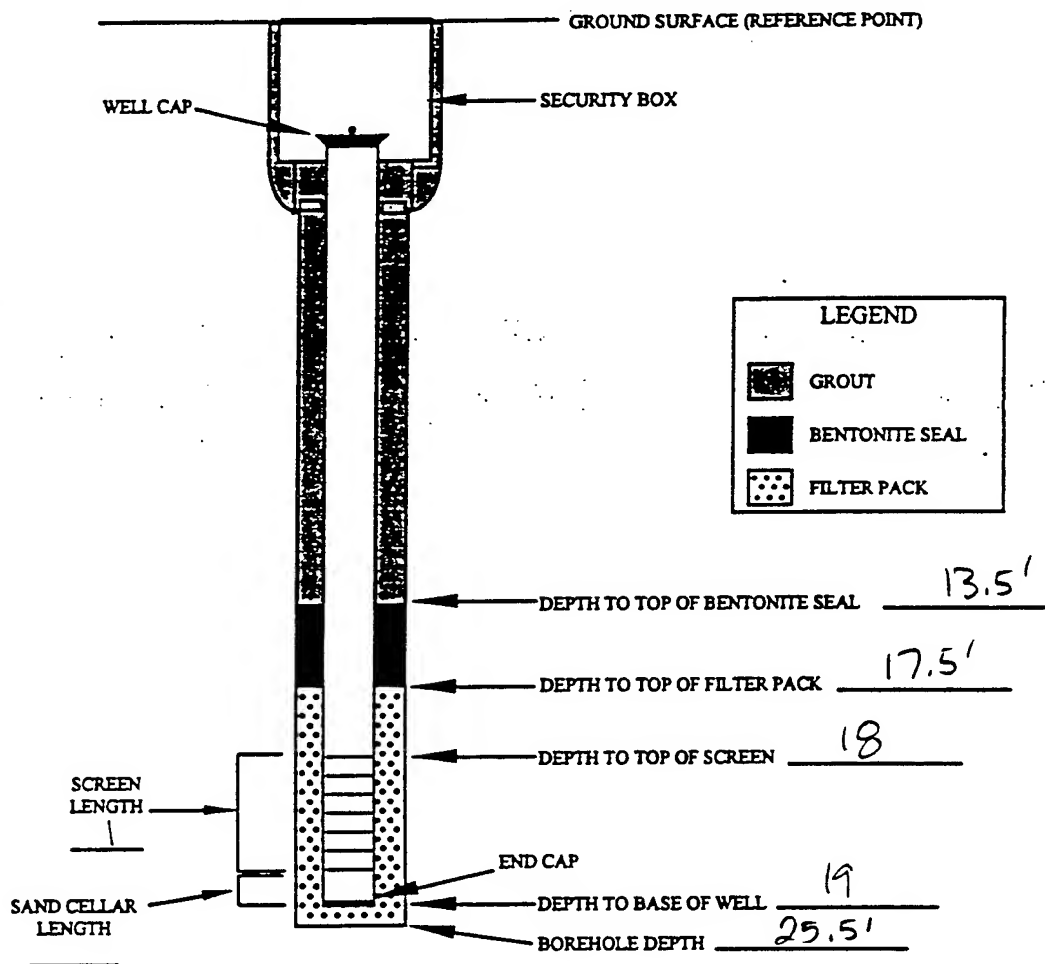
STRATUM-SCREENED INTERVAL (FT): 18-19

COMMENTS: \_\_\_\_\_

CASING MATERIAL: PVC schedule 40

CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

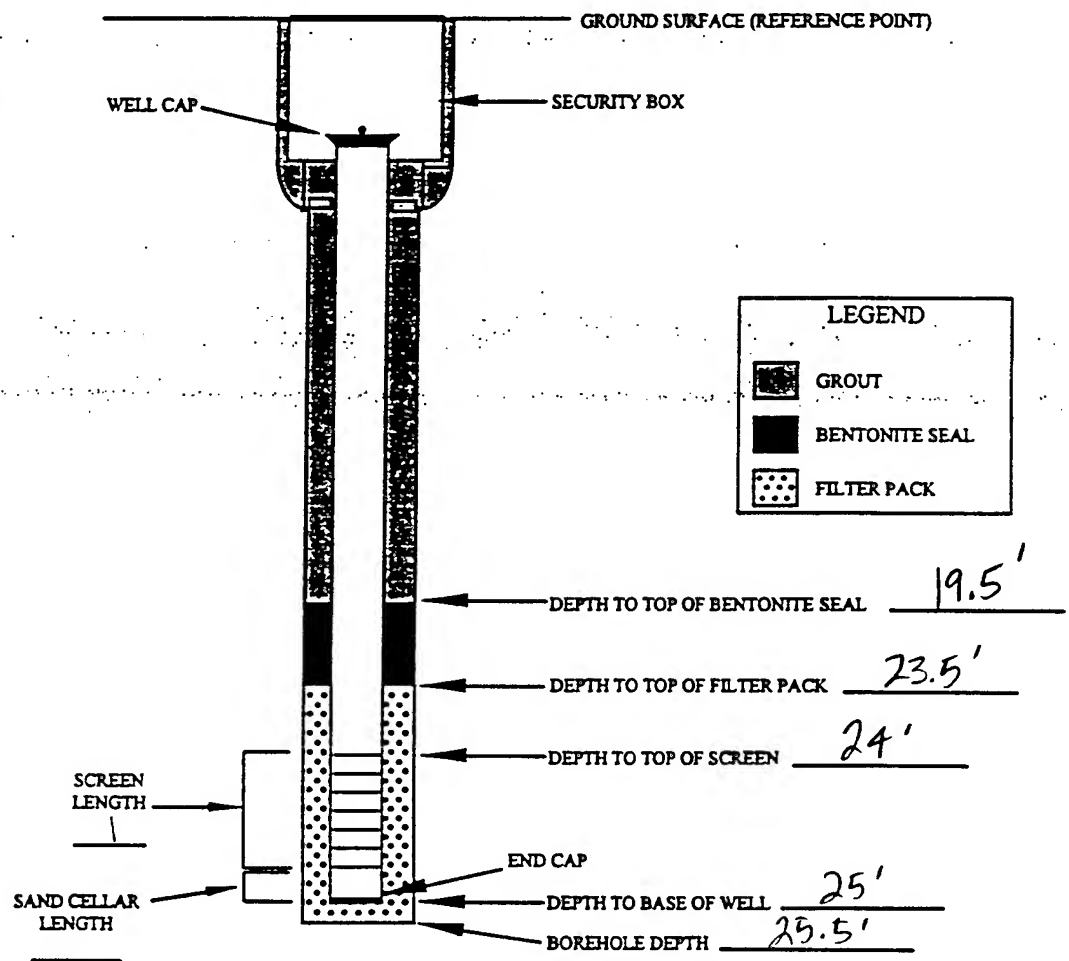
INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)

DISCREPANCIES: \_\_\_\_\_

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 3  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gald / Holeplug  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 4  
 BOREHOLE IDENTIFICATION: SSO8B-MP TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: 14" AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SSO8B-MP GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/13/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/13/97 DIMENSIONS OF SECURITY BOX: \_\_\_\_\_  
 SCREEN MATERIAL: PVC Schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: 3/4" TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): 24-25  
 CASING MATERIAL: PVC schedule 40 COMMENTS: \_\_\_\_\_  
 CASING DIAMETER: 3/4"

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metcalf & Eddy Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

## BORING LOG

Borehole ID: SS08B-MPL/  
Sheet 1 of 1 VE1

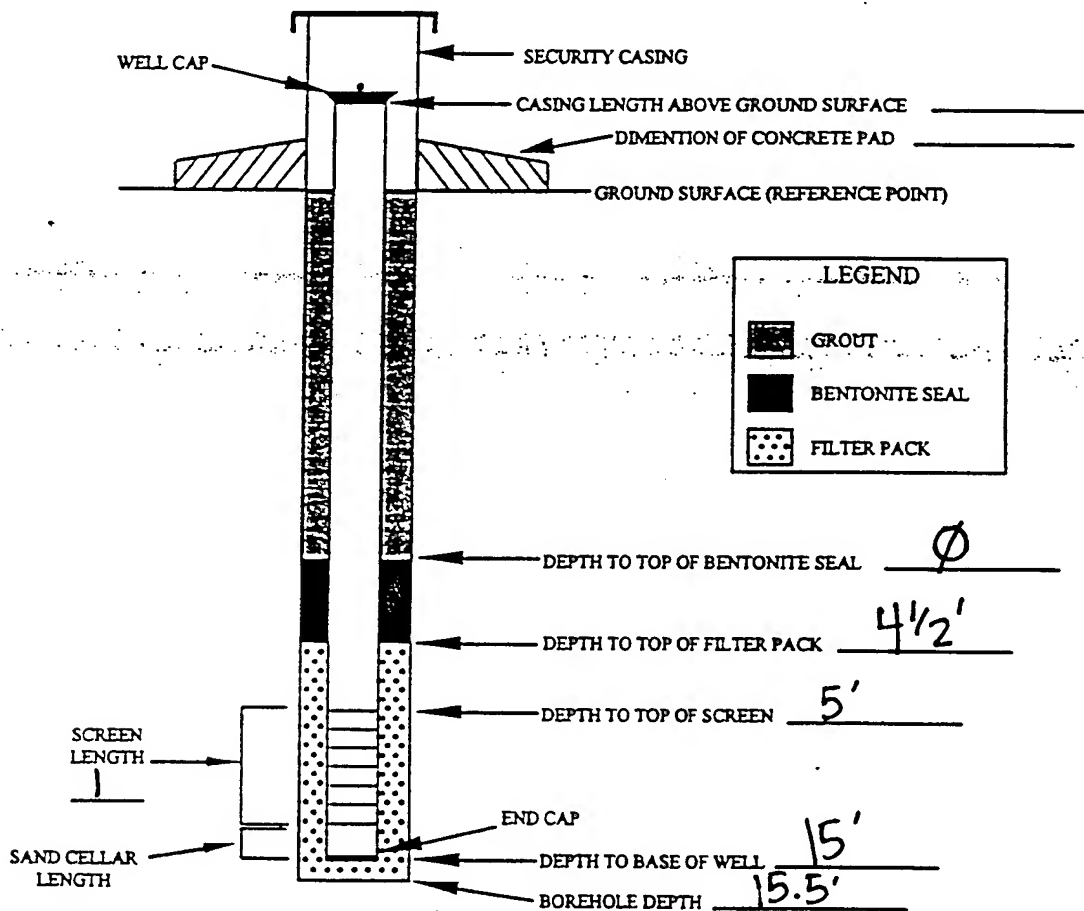
Project Name <u>Pilot Test Well</u>		Project Number <u>021746</u>		LTCCODE (IRPIMS)		Site ID <u>SS08B</u>		LPRCODE (IRPIMS)	
Drilling Company <u>American Environmental</u>		Driller <u>Ron Hather</u>		Ground Elevation		Total Drilled Depth <u>15.5'</u>			
Drilling Equipment <u>CME 75</u>		Drilling Method <u>9 1/4" IDHSA</u>		Borehole Diameter <u>14"</u>		Date/Time Drilling Started <u>11/11/97 / 1502</u>		Date/Time Total Depth Reached <u>11/11/97 / 1645 15.5'</u>	
Type of Sampling Device				Water Level (bgs)		First		Final	
Sample Hammer				Hydrogeologist <u>B. Chavez</u>		Checked by/Date			
Type				Driving Wt.		Drop			
Location Description (include sketch in field logbook)									
Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)	
				0-5 SAND (SP) 100% 4/20 medium brown, poorly sorted, 15% clay, 15% plants - (give very fine grains) - fine particles - none	SP		M	F	
				5-10 SAND (SP) 100% 4/20 pale brown Same as above material	SP		M	Ø	
				(10-15.5) Same as above material	SP		M	Ø	
End of Boring 15.5'									

SS08B-VE1  
MP6

# WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: B. Chavez TYPE OF FILTER PACK: global sand  
 GRADATION: #5  
 DRILLING CONTRACTOR: American Environmental AMOUNT OF FILTER PACK USED: 12  
 DRILLING TECHNIQUE: CME75 TYPE OF BENTONITE: Pure Gold Chips  
 AUGER SIZE AND TYPE: 9 1/4" ID HSA AMOUNT BENTONITE USED: 18  
 BOREHOLE IDENTIFICATION: SS08B-MP6/VE1 TYPE OF CEMENT: \_\_\_\_\_  
 BOREHOLE DIAMETER: \_\_\_\_\_ AMOUNT CEMENT USED: \_\_\_\_\_  
 WELL IDENTIFICATION: SS08B-MP6/VE1 GROUT MATERIALS USED: \_\_\_\_\_  
 WELL CONSTRUCTION START DATE: 11/11/97  
 WELL CONSTRUCTION COMPLETE DATE: 11/11/97 DIMENSIONS OF SECURITY CASING: \_\_\_\_\_  
 SCREEN MATERIAL: PVC schedule 40 TYPE OF WELL CAP: \_\_\_\_\_  
 SCREEN DIAMETER: \_\_\_\_\_ TYPE OF END CAP: \_\_\_\_\_  
 STRATUM-SCREENED INTERVAL (FT): \_\_\_\_\_  
 COMMENTS: \_\_\_\_\_  
 CASING MATERIAL: PVC schedule 40  
 CASING DIAMETER: \_\_\_\_\_

SPECIAL CONDITIONS  
(describe and draw)



NOT TO SCALE

INSTALLED BY: American Environmental INSTALLATION OBSERVED BY: Metabank, Edly Inc (B. Chavez)  
 DISCREPANCIES: \_\_\_\_\_

**APPENDIX B**  
**PILOT TEST DATA AND ANALYSES FOR SITE SS-06**

WURTSMITH AFB PILOT TESTING SITE SS06, AS/SVE SYSTEM READINGS

Date	Time	MP6 Vacuum (in H2O)	Inlet Temp (°F)	Port 1 Vacuum (in H2O)	Port 1 % O2	Port 1 % CO2	Port 1 % CH4	Port 1 PID (ppmv)	SVE Flow Rate (scfm)	Port 2 Vacuum (in H2O)	SVE Blower Outlet Temp (°C)	Port 3 Pressure (in H2O)	Port 4 Extracted % He	Port 4 % O2	Port 4 % CO2	Port 4 % CH4	Port 4 PID (ppmv)	Port 4 Pressure (in H2O)	Port 4 % O2	Port 4 % CO2	Port 4 % CH4	Port 4 PID (ppmv)	Port 4 Pressure (in H2O)	Port 5 % O2	Port 5 % CO2	Port 5 % CH4	Port 5 PID (ppmv)	Port 5 Pressure (inches H2O)	Final Discharge % O2	Final Discharge % CO2	Final Discharge % CH4	Flame Discharge FID (ppmv)	Spurge Air % He	Spurge Air Pressure (psi)	Spurge Outflow Rate (cfm)	Temp (°F)	Helium Flow (μ/min)	SF6 Flow (μ/min)	Spurge On Cycle (Min.)	Spurge Off Cycle (Min.)							
11/13/97	10:15	19.1		22.0					156.00	34.3	26	14.10		13.9	3.7	16.6	432	13.80				0	5.60																								
11/13/97	16:10	19.1		21.9					154.00	33.2	30	14.50					330	14.10				0	5.80																								
11/13/97	17:09	19.1		21.9					153.00	33.1	31	14.30		14.3	4.9	22.0	370	14.00				0	5.70																								
11/13/97	18:00	19.0		21.8	14.9	4.5	19.8		151.00	32.7	31	14.20		15.0	4.4	19.7	451	13.90				0	5.70																								
11/13/97	21:50	19.4		22.6	15.8	3.7	16.5		155.00	34.2	30	14.20					330	13.90				0	5.60																								
11/14/97	8:45	19.0		21.8	16.4	3.0	13.4		154.00	32.6	29	14.10		13.8	3.0	16.5	495	13.80				119	5.80																								
11/14/97	11:45	11.9	52	14.2					96.00	18.4	23	6.20					270	2.20				0	2.70																								
11/15/97	12:45	21.1		14.5					95.00	18.8	22	5.70					440	5.50				0	1.70																								
11/15/97	18:00	11.3		13.5					94.00	7.6	21	5.30					375	5.20				0	1.40																								
11/16/97	11:15	11.3	52	13.6	18.1	1.4	7.0		95.00	17.7	22	5.60		18.4	1.4	7.1	751	5.40				236	1.90																								
11/16/97	12:00																0					0																									
11/17/97	8:20	11.6		14.0					95.00	18.2	21	3.80					810	3.90				0																									
11/17/97	11:20		52	13.8	16.6	1.3	6.7	750																																							
11/17/97	15:00	11.5	52	13.7	17.3	1.2	5.4	414	95.00	17.9	20	3.70		17.2	1.3	6.4	690	3.60				149	2.27																								
11/17/97	18:50	11.1	52	13.3					94.00	17.8	22	5.80					461	5.65				0	2.24																								
11/18/97	10:51	9.1	52	12.2	18.8	1.4	6.8	590	86.00	14.5	24	5.80		18.7	1.4	5.9	775				0	479																									
11/18/97	18:05																					1	348																								
11/18/97	18:23																4					4																									
11/18/97	19:30																738					426																									
11/18/97	21:04	11.6		13.4					90.00	17.7	18	5.85					971	5.70				0	2.40																								
11/19/97	8:30	11.6		13.5					94.00	12.6	21	6.15		8.3	1.3	6.1	331	5.50				149	2.46																								
11/19/97	9:30																282					109																									
11/19/97	11:22																257																														
11/19/97	13:47																470																														
11/19/97	14:05																381																														
11/19/97	14:15																374																														
11/19/97	14:22																318																														
11/19/97	14:30																214																														
11/19/97	15:00																221																														
11/19/97	15:30																214																														
11/19/97	16:00																214																														
11/19/97	16:30																241																														
11/19/97	17:15	11.1		13.0					94.00	17.0	24	6.14					293	6.00				121	2.50																								
11/19/97	18:49																293																														
11/19/97	19:05																311																														
11/19/97	19:55																362																														
11/19/97	21:10																362																														
11/20/97	0:13	11.2		13.0					17.0	20	20	6.06					830	5.85				335	2.45																								
11/20/97	13:20																545																														
11/20/97	17:24																264																														
11/20/97	20:47																159																														
11/20/97	21:20	11.2		13.0					94.00	17.1	24	5.90					297	6.01				189	2.50																								
11/21/97	7:30																342																														
11/21/97	8:34																374	5.98				277	2.52																								
11/21/97	13:51																307																														

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR DATA FOR WELL MP1A**

Test Location SS06  
Vapor Monitoring Well MP1A

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/11/97 18:22		13	5.3	0.2	0.0	161	JP
11/12/97 19:51		20.3	0.0	0.2	0.0	2.45	JP
11/13/97 9:32		20.0	0.4	0		240*	FA
11/13/97 9:47		20.2	0.4	6		32.4	JP
11/15/97 15:00	1.59	20	0	0.05		40.3	FA
11/17/97 11:22	1.5	18	0	0.1		88	FA
11/18/97 11:23	1.21	20.1	0	0		19.2	ASR
11/19/97 14:27	1.52	20.2	0	0		7.7	SJ
11/20/97 14:02	1.4	20	0	0.1	0	37.3	SJ
11/21/97 12:20	1.8	19.8	0	0	0	37.7	SJ
11/22/97 12:30	1.62	20.6	0.2	0	0	21.7	SJ
11/23/97 15:40	1.67	20.6	0.2	0	0	434	SJ
11/24/97 11:51	-0.14	19.4	0.1	38.2	1.8	435	JP
11/24/97 16:04	-0.16	19.5	0	55.3	2	407	JP
11/24/97 21:45		19.6	0	45	2	418	ASR
11/26/97 11:00		19.6	0.1	37.5	0.9	623	FA
11/28/97 12:50		18.4	0.3	12.7	0.52	2308*	FA
11/30/97 16:30		18.3	0.4	1.8	0.28	272	FA
12/2/97 11:03		18.2	0.5	0.7	0.2	217.6	SJ
12/4/97 10:32		17.7	0.7	0.1	0.15	114.5	SJ
12/9/97 16:25		17.6	0.7	0	0	35	ASR
12/13/97 10:42		16.9	1.1	0	0	13.7	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR DATA FOR WELL MP1B**

Test Location SS06  
Vapor Monitoring Well MP1B

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 18:11	0	0.2	14.9	55	0	143	JP
11/12/97 19:36	6.2	19.8	0.7	0.7	0	454*	JP
11/13/97 9:58		15.1	3.9	0.7		270*	JP
11/15/97 15:05	3.45	20	0	0		40.3	FA
11/17/97 11:48		17.9	0	0		40.8	FA
11/18/97 11:37	2.71	20	0	0		15.1	ASR
11/19/97 14:41	3	20.1	0	0		7.7	SJ
11/20/97 15:59	2.93	20.4	0	0	0	13.4	SJ
11/21/97 13:30	3.12	20.3	0	0	0	35	SJ
11/22/97 13:40	3.25	20	0.2	0	0	12.7	SJ
11/23/97 17:58	3.23	19.9	0.2	0	0	204.8*	SJ
11/24/97 12:02	-0.38	19.6	0	33.8	1.9	465	JP
11/24/97 16:21	-0.38	19.7	0	45.1	2	444	JP
11/24/97 21:58		19.7	0	39.5	2	425	ASR
11/25/97 16:48		18.7	0.6	27.8	1.4	627	SJ
11/26/97 11:16		17.2	0.8	17.8	1.3	645	FA
11/28/97 13:18		16	1.3	6.1	0.88	1951*	FA
11/30/97 16:45		15.4	1.8	0.6	0.44	201	FA
12/2/97 11:17		14	2.5	0.6	0.26	180.5	SJ
12/4/97 10:53		11.7	3.4	1.6	0.18	284	SJ
12/9/97 16:40		9.3	4.7	1.6	0	216.2	ASR
12/13/97 12:49		6	6.3	1.4	0	302	SJ

\* Data point left out of plot due to probable data collection error.



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR DATA FOR WELL MP1C**

Test Location SS06  
Vapor Monitoring Well MP1C

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	OVM PID (ppm)	Operator
11/11/97 18:33		0	15.6	150	0	79.4	JP
11/12/97 19:28	7.3	4.7	13.4	29.8	0	1000	JP
11/13/97 10:09	6.78	4.5	12.3	71.7		142	FA
11/15/97 15:10	4.11	20	0	0		42.2	FA
11/17/97 11:55	4.05	17.9	0.2	0.5		387	FA
11/18/97 11:57	3.3	20.2	0.1	0.3		391	ASR
11/19/97 17:35		14.1	7.2	150		85.5	SJ
11/20/97 18:24	3.47	20.2	0	0	0	5.9	JP
11/20/97 19:23	3.54	16	3.7	48.3	0.27	194	SJ
11/21/97 16:18	3.59	21.2	0	0	0	11.9	SJ
11/22/97 16:16	3.51	18.9	1.8	7.6	0	602	SJ
11/23/97 14:09	3.75	13.9	7.6	72.7	0.21	164	SJ
11/24/97 12:24	-0.47	19.4	0	11.4	1.9	552	JP
11/24/97 16:37	-0.54	19.9	0	12.3	2	526	JP
11/24/97 22:10	-0.54	19.5	0	29.7	1.9	439	ASR
11/25/97 17:12		19.1	0.5	55.6	1.5	477	SJ
11/26/97 11:20		17.6	0.5	66.5	1.6	445	SJ
11/28/97 14:00		15	1.4	59.8	1.1	1673*	FA
11/30/97 17:05		12.8	2.4	46.5	0.52	411	FA
12/2/97 11:53		11	3.6	51.8	0.17	399	SJ
12/4/97 11:11		6.9	4.7	63.3	0.06	427	SJ
12/9/97 20:00		3.4	7.2	57.4	0	403	FA
12/13/97 14:20		1.7	9.6	49.4	0	853	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP2A**

Test Location SS06  
Vapor Monitoring Well MP2A

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 18:44		11.5	6.1	2.5	0	725	JP
11/12/97 20:18		20.1	0.3	2.7	0	2449	JP
11/13/97 10:20		17.9	2.1	2.8		896	FA
11/15/97 15:17	0.69	20	0	0		57.1	FA
11/17/97 12:10	0.69	18.4	0	0		83	FA
11/18/97 12:26	0.63	21	0	0		55.6	ASR
11/19/97 14:55	0.68	20.1	0	0		10.2	SJ
11/20/97 14:36	0.66	20.4	0	0	0	24.6	SJ
11/21/97 12:10	0.83	19.7	0	0	0	202.7	SJ
11/22/97 12:48	0.91	20.1	0.2	0	0	18.7	SJ
11/23/97 16:51	0.72	20.2	0.3	0	0	159.9	SJ
11/24/97 12:36	-0.08	18.1	0.3	5	0	318	SJ
11/24/97 16:46	-0.07	17.2	1.9	21.4	0.08	391	JP
11/24/97 22:20		18	1.8	21.4	0.52	418	ASR
11/25/97 17:25		19.9	1.1	0.5	0.44	377	SJ
11/26/97 11:35		18.9	0.7	0.7	0.42	275	FA
11/28/97 15:20		18.8	0.5	0.1	0.35	227	FA
11/30/97 17:25		18.8	0.4	0.4	0.28	200	FA
12/2/97 12:11		18	0.7	0.3	0.17	146	SJ
12/4/97 11:29		17	1	0.2	0.1	152	SJ
12/9/97 17:00		16.6	1.2	0	0	20	ASR
12/13/97 11:20		16	1.8	0	0	7	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP2B**

Test Location SS06  
Vapor Monitoring Well MP2B

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 18:53		3.4	11.8	16.4	0	431	JP
11/12/97 20:09		17.9	2.2	3.2	0	1950	JP
11/13/97 10:25		14.2	4.6	0.3		304	FA
11/15/97 15:25	0.86	20	0	0		57.1	FA
11/17/97 12:15	0.89	18.7	0	0		74	FA
11/18/97 12:34	0.78	21	0	0		47	ASR
11/19/97 17:03	0.75	20.3	0	0		8.3	SJ
11/20/97 16:23	0.84	20.5	0	0	0	11.9	SJ
11/21/97 13:47	0.99	20.6	0	0	0	30.4	SJ
11/22/97 14:11	0.71	19.6	0.4	0	0	11.1	SJ
11/23/97 18:15	0.86	20.3	0.2	0	0	232	SJ
11/24/97 12:56	-0.09	16.4	1.7	16.5	0	3.26	SJ
11/24/97 17:03		16.2	3	39.4	0.33	318	SJ
11/24/97 22:30		17.4	2.5	31.5	0.96	346	ASR
11/25/97 17:45		18.1	2.6	0.4	0.54	245	SJ
11/26/97 11:45		16.7	2.2	0.5	0.46	210	FA
11/28/97 15:50		17.1	1.8	0	0.33	187	FA
11/30/97 17:45		16.5	1.9	0.1	0.16	103	FA
12/2/97 12:50		15.6	2.3	0	0	47.2	SJ
12/4/97 11:55		13.6	3.2	0	0	93.3	SJ
12/9/97 18:55		12.8	3.7	0	0	48.2	FA
12/13/97 13:04		11.2	5.1	0	0	29.3	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP2C**

Test Location SS06

Vapor Monitoring Well MP2C

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 18:57		0	15.2	150	0	80.7	JP
11/12/97 20:00		1.5	15.2	132.7	0	205	JP
11/13/97 10:30		3.3	12.7	129		133	FA
11/15/97 15:30	1.56	14.4	5.1	15.7		400	FA
11/17/97 12:20	1.52	15.2	3.5	16.6		997	FA
11/18/97 15:59	1.56	17.3	3.5	20.6		938	ASR
11/19/97 18:43	1.24	12	7.7	82.3	0	185.5	JP
11/20/97 19:01	1.37	12.1	7.7	70.8	0	250	SJ
11/21/97 16:37	1.77	21	0	0	0	7.3	SJ
11/22/97 16:28	1.41	12.8	8.9	47.7	0	515	SJ
11/23/97 14:19	1.58	19.9	0.3	0	0	309	SJ
11/24/97 13:06	-0.23	13.8	6	148.3	0.66	181	SJ
11/24/97 17:16	-0.19	17.8	3.3	150	1.1	170	SJ
11/24/97 22:45		18.1	2.4	150	1.5	172	ASR
11/25/97 18:03		16.7	4.9	131.2	0.85	255	SJ
11/26/97 11:55		14	4.5	132.5	0.62	255	FA
11/28/97 16:10		10.6	5.6	97.5	0.11	1001*	FA
11/30/97 18:00		5.7	7.4	97.5	0	276	FA
12/2/97 14:25		4.1	8.6	88.7	0	261	SJ
12/4/97 12:09		1.6	10.3	102.8	0	289	SJ
12/9/97 19:50		0	12	93.8	0	301	FA
12/13/97 14:37		0	13.3	100.5	0	519	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP3A**

Test Location SS06  
Vapor Monitoring Well MP3A

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:05		16.6	1.9	6.1	0	745	JP
11/12/97 20:52		20.5	0	0.4		395	JP
11/13/97 10:45		19.9	0.2	2.4		818	FA
11/15/97 17:15	0.62	19.4	0	0		703	FA
11/17/97 12:30	0.59	18.8	0	0.1		208	FA
11/18/97 14:05	0.9	21.2	0	0		51.6	JP
11/19/97 15:14	0.83	20.1	0	0		16	SJ
11/20/97 14:48	0.7	20.2	0	0	0	28.3	SJ
11/21/97 12:35	0.75	19.7	0	0	0	33.1	SJ
11/22/97 12:56	0.81	19.9	0.3	0	0	17.2	SJ
11/23/97 17:11	0.98	20.1	0.3	0	0	184.6	SJ
11/24/97 13:30	-0.29	19.1	0.2	30.2	0.35	491	SJ
11/24/97 17:37	-0.24	19.8	0.1	26.6	1.9	449	SJ
11/24/97 22:53		19.5	0.2	45.4	1.9	373	JP
11/25/97 18:20		20.8	0.3	19.4	0.75	518	SJ
11/26/97 12:10		19	0.2	28.5	0.67	470	FA
11/28/97 17:15		17.8	0.7	4.3	0.72	1860*	FA
11/30/97 18:15		18.6	0.4	1.6	0.47	315	FA
12/2/97 14:39		18.5	0.4	0.6	0.79	231	SJ
12/4/97 12:48		16.3	1.2	3.2	0	371	SJ
12/9/97 17:17		16.8	1	0.1	0	84.5	ASR
12/13/97 11:48		16.5	1.6	0.3	0	166.5	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP3B**

Test Location SS06  
Vapor Monitoring Well MP3B

Time	Vacuum (inches H <sub>2</sub> O)	%O <sub>2</sub>	%CO <sub>2</sub>	%CH <sub>4</sub>	%Helium	PID (ppm)	Operator
11/11/97 19:12		1.3	13.6	off scale	0	86.7	JP
11/11/97 20:45		20.2	0	0.6		572	JP
11/12/97 10:48		13.6	2.7	5.6		206	FA
11/14/97 17:35	1.15	19.3	0	0		870	FA
11/15/97 12:45	1.15	18.8	0	0		96.3	FA
11/17/97 15:31	1.4	21.2	0	0		21.2	ASR
11/18/97 16:39	0.85	20	0	0		9.6	SJ
11/19/97 16:37	0.94	20.4	0	0	0	10.4	SJ
11/20/97 14:38	0.86	21	0	0	0	22.1	SJ
11/21/97 14:29	1.17	19.7	0.3	0	0	14.2	SJ
11/22/97 18:27	0.96	20.4	0.2	0	0	197	SJ
11/23/97 13:44	-0.5	19.3	0	26.1	0.17	493	JP
11/24/97 17:59	-0.67	19.9	0	25.9	2	453	SJ
11/24/97 23:02		19.5	0.1	41.5	1.9	370	JP
11/24/97 18:35		19.9	0.6	56	1.1	407	SJ
11/25/97 12:25		17.8	0.8	68.7	1.3	364	FA
11/26/97 17:40		18	0.7	3.6	0.62	1808*	FA
11/28/97 18:30		16.4	1.6	9.4	0.49	459	FA
11/30/97 14:49		15.3	1.4	6.5	0.47	407	SJ
12/2/97 13:18		10.6	3.9	22.1	0.11	404	SJ
12/4/97 18:40		10	4.7	9.9	0	360	FA
12/9/97 13:21		4	7.6	20.5	0	747	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP3C**

Test Location SS06  
Vapor Monitoring Well MP3C

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:16		0	15.1	150	0	70.1	JP
11/12/97 20:29		20	0.2	0.4		461	JP
11/13/97 10:58		6.1	7.7	56.6		91	FA
11/15/97 17:20	1.66	19.3	0	0		60	FA
11/17/97 13:00	1.68	18.8	0	0		67.9	FA
11/18/97 16:36	1.8	21	0	0		88	ASR
11/19/97 17:57	0.89	19.1	1.9	150		160	JP
11/20/97 19:50	1	20	0.2	71.4	1.2	338	SJ
11/21/97 16:55	1.4	20.9	0	0	0	8.2	SJ
11/22/97 16:40	1.37	20	0.3	13.2	1.5	902	SJ
11/23/97 14:38	1.26	19.9	0.3	0	0	655	SJ
11/24/97 14:08	-0.87	19.7	0	24.2	1.6	517	JP
11/24/97 18:36	-0.72	19.7	0	21.6	2.1	486	SJ
11/24/97 23:13		19.4	0	36	1.9	397	JP
11/25/97 19:07		19.9	0.4	64.3	1.6	377	SJ
11/26/97 14:00		18.4	0.4	72.4	1.7	346	SJ
11/28/97 18:00		15.7	1.3	65.4	1	1192*	FA
11/30/97 18:55		13.6	2.2	72.2	0.86	335	FA
12/2/97 15:07		12.4	2.9	69.1	0.4	293	SJ
12/4/97 13:31		9.5	4.3	92.5	0.1	294	SJ
12/9/97 19:40		2.9	7.3	94.9	0	301	FA
12/13/97 14:53		0.7	10	98.1	0	578	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP4A**

Test Location SS06

Vapor Monitoring Well MP4A

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:22		12.8	5.4	14.1	0	997	JP
11/12/97 21:17		20.1	0	4		395	JP
11/13/97 11:07		19.4	0.4	1.2		576	FA
11/15/97 17:30	0.21	19.3	0	0		54.4	FA
11/17/97 13:19	0.19	19	0	0		37	FA
11/18/97 14:27	0.22	21.2	0	0		24.2	ASR
11/19/97 15:31	0.15	20.1	0	0		10.9	SJ
11/20/97 15:23	0.21	20.3	0	0	0	20.8	SJ
11/21/97 12:53	0.11	19.4	0	0	0	13.8	SJ
11/22/97 13:12	0.22	20.2	0.2	0	0	20.1	SJ
11/23/97 17:22	0.45	19.9	0.3	0	0	194.1	SJ
11/24/97 14:28	-0.07	18.9	0.5	52.5	0.85	331	JP
11/24/97 19:00	-0.07	19.3	0.8	54.4	1.5	330	JP
11/24/97 23:21		18.9	0.5	57.2	0.97	309	JP
11/25/97 21:38		19.8	0.3	4.8	0.52	650	SJ
11/26/97 14:20		19.8	0	1	0.33	301	SJ
11/28/97 18:20		19.6	0	0.4	0.27	45	FA
11/30/97 19:10		19.8	0	0.8	0.2	30	FA
12/2/97 15:20		19.1	0.3	0.6	0.2	197	SJ
12/4/97 13:45		18.2	0.5	0.4	0.1	173	SJ
12/9/97 17:35		18.2	0.6	0	0.01	19.3	ASR
12/13/97 12:17		17.5	1	0	0.11	29.3	SJ



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP4B**

Test Location SS06

Vapor Monitoring Well MP4B

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:26		3.5	11.3	41.4	0	595	JP
11/12/97 21:11		20	0	0.7		619	JP
11/13/97 11:10		12.6	4.6	0.9		415	FA
11/15/97 17:45	0.5	19.3	0	0		500	FA
11/17/97 13:38	0.5	19	0	0		36.3	FA
11/18/97 15:19	0.49	21.2	0	0		13.1	ASR
11/19/97 16:27	0.26	20.1	0	0		8.3	SJ
11/20/97 16:58	0.37	20.4	0	0	0	9.7	SJ
11/21/97 15:03	0.43	21	0	0	0	8.2	SJ
11/22/97 14:43	0.46	19.9	0.2	0	0	14.8	SJ
11/23/97 18:37	0.41	20.5	0.2	0	0	18	SJ
11/24/97 14:43	-0.16	19.3	0.7	104.2	1.2	287	JP
11/24/97 19:20	-0.13	19.5	0.5	90.6	1.9	279	JP
11/24/97 23:29		19	0.8	84.2	1.7	282	JP
11/25/97 21:49		17.6	2.1	13.6	0.89	650	SJ
11/26/97 14:28		17.1	1.6	2.4	0.59	335	SJ
11/28/97 18:35		18	1	0.3	0.29	99	FA
11/30/97 19:35		17.7	1.3	0.3	0.24	30	FA
12/2/97 15:47		16.4	2	0.2	0.11	89.8	SJ
12/4/97 13:56		13.8	3.4	0.4	0	173	SJ
12/9/97 18:25		13.4	3.4	0	0	43.1	FA
12/13/97 13:37		12.6	4	0.2	0	128.3	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP4C**

Test Location SS06

Vapor Monitoring Well MP4C

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:31		0	14.6	150	0	66.7	JP
11/12/97 21:05		16.6	3.2	1		592	JP
11/13/97 11:15		4.5	10.2	68		77	FA
11/15/97 17:40	0.96	19.2	0.1	0		60.2	FA
11/17/97 13:28	0.96	18.6	0.4	0		78.7	FA
11/18/97 16:58	0.9	20.9	0.4	0.1		100.2	ASR
11/19/97 18:07	0.51	15.6	6.9	150	2.5	75.2	JP
11/20/97 20:12	0.62	18.2	2	30.5	0.51	189.5	SJ
11/21/97 17:11	0.97	21	0	0		3.6	SJ
11/22/97 17:09	0.8	18.2	2.2	13.1	0.23	318	SJ
11/23/97 15:06	0.61	20.6	0.2	0	0.07	296	SJ
11/24/97 15:01	-0.41	19.3	0.5	110.7	1.5	293	JP
11/24/97 19:30	-0.39	19.5	0.5	88.9	2	289	JP
11/24/97 23:38					1.9	230	JP
11/25/97 22:00		18.3	1.8	136.3	1.4	391	SJ
11/26/97 14:46		16.9	1.7	122.3	1.2	269	SJ
11/28/97 18:55		13.5	3.3	68	0.56	480	FA
11/30/97 19:45		10.5	5.1	79.6	0.29	218	FA
12/2/97 15:58		6.1	7	100.1	0	179.7	SJ
12/4/97 14:05		2.9	9	124.1	0	192	SJ
12/9/97 19:25		0.7	11.2	107.9	0	188	FA
12/13/97 15:32		1.1	12.4	100.5	0	324	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP5A**

Test Location SS06  
Vapor Monitoring Well MP5A

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:36		12.5	5.1	17.6	0	792	JP
11/12/97 21:39		20	0	0.3		336	JP
11/13/97 11:25		16.5	2.2	1.6		585	FA
11/15/97 17:57	0.05	19.5	0	0		41.5	FA
11/17/97 14:00	0.05	19	0	0		21.2	FA
11/18/97 14:45	0.14	21.2	0	0		15.1	ASR
11/19/97 15:41	0.03	20.1	0	0		9.6	SJ
11/20/97 15:45	0.03	20.3	0	0	0	15.6	SJ
11/21/97 13:10	0.02	19.6	0	0	0	18.4	SJ
11/22/97 13:29	0.04	20.1	0.2	0	0	14.3	SJ
11/23/97 17:33	0.25	19.8	0.3	0	0	192.7	SJ
11/24/97 15:16	-0.02	17.1	1.8	43	0.52	272	JP
11/24/97 19:43	-0.02	17.4	2.3	70.1	0.85	246	JP
11/24/97 23:45					0.25	229	JP
11/25/97 22:16		19.4	0.9	2.4	0.04	613	SJ
11/26/97 14:59		20.2	0.1	1	0.09	289	SJ
11/28/97 19:05		19.8	0	2.6	0.11	43.4	FA
11/30/97 20:00		20.2	0	0.8	0.07	35	FA
12/2/97 16:09		19.1	0.4	0.6	0.4	161	SJ
12/4/97 14:21		16.8	1.3	0.4	0.27	145	SJ
12/9/97 17:53		19.7	0.2	0	0.03	14.3	ASR
12/13/97 12:35		16.3	1.7	0	0	18.1	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP5B**

Test Location SS06  
Vapor Monitoring Well MP5B

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 17:42		0.5	12.6	145.4	0	121.9	JP
11/12/97 21:33		19.5	0.4	0.5		442	JP
11/13/97 11:28		10.2	3.8	8.8		304	FA
11/15/97 6:15	0.17	19.5	0	0		350	FA
11/17/97 14:10	0.18	18.9	0	0		12.5	FA
11/18/97 15:07	0.19	21.2	0	0		13.1	ASR
11/19/97 16:08	0.07	20	0	0		9.6	SJ
11/20/97 17:19	0.11	20.5	0	0	0	10.4	SJ
11/21/97 15:37	0.15	20.8	0	0	0	10.1	SJ
11/22/97 15:47	0.12	20.9	0.1	0	0	2.2	SJ
11/23/97 18:49	0.11	20.7	0.3	0	0	154	SJ
11/24/97 15:32	-0.08	16.1	3.5	63.9	0.67	208	JP
11/24/97 19:55	-0.08	17.8	3.2	92.7	1.1	200	JP
11/24/97 23:50					1	170	JP
11/25/97 22:36		16.1	4.1	12.8	0.38	477	SJ
11/26/97 15:13		18.5	1.5	0.6	0.24	204	SJ
11/28/97 19:20		18.2	1.3	0.2	0.19	12	FA
11/30/97 20:10		17.3	1.8	0.5	0.08	30	FA
12/2/97 16:20		10.4	5.3	0.8	0	135	SJ
12/4/97 14:34		5.5*	7.8*	2.1*	0*	209*	SJ
12/9/97 18:10		12.5	4.7	0.2	0	52.9	FA
12/13/97 14:04		10.5	6.5	0.5	0	130.2	SJ

\* Data point left out of plot due to probable data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP5C**

Test Location SS06

Vapor Monitoring Well MP5C

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/11/97 19:47		0	13.3	150	0	77.1	JP
11/12/97 21:26		19.1	0.9	1.3		631	JP
11/13/97 11:33		4.7	9.5	114.6		108	FA
11/17/97 14:40	0.45	18.8	0	0		73.7	FA
11/18/97 17:36	0.43	21.1	0.1	0.1		104	ASR
11/19/97 18:21	0.22	17.7	2.2	17.3	0.98	77.1	JP
11/20/97 20:39	0.29	19.4	0.7	2.1	0.08	174	SJ
11/21/97 17:24	0.59	21.1	0	0	0	3.4	SJ
11/22/97 17:19	0.51	19.3	0.8	2.2	0	262	SJ
11/23/97 15:22	0.3	20.5	0.2	0	0	449	SJ
11/24/97 15:43	-0.23	18.2	2.4	150	1.2	131	JP
11/24/97 20:13	-0.23	18.8	1.6	150	1.6	129	JP
11/24/97 23:00					1.5		JP
11/25/97 22:55		16.4	4.9	146.5	0.91	243	SJ
11/26/97 15:23		14.3	4.5	121	0.73	181	SJ
11/28/97 19:35		10.6	6.4	105.8	0.26	193	FA
11/30/97 20:25		5.3	8.7	115.2	0	200	FA
12/2/97 16:30		3.1	10.8	146	0	117.9	SJ
12/4/97 14:47		0.9	12.4	150	0	126.3	SJ
12/9/97 19:10		0	13.2	141.3	0	131.7	FA
12/13/97 16:00		0.2	14.1	146	0	217	SJ

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP6**

Test Location SS06

Vapor Monitoring Well MP6

Time	Vacuum (inches H2O)	%O2	%CO2	%CH4	%Helium	PID (ppm)	Operator
11/24/97 21:30	-0.53	19.6	0	47.5	2	426	ASR
11/25/97 23:07		19.2	0.5	62.5	1.4	499	SJ
11/26/97 16:20		18.4	0.4	48	1	450	FA
11/28/97 19:55		17.2	0.8	14.6	0.59	480	FA
11/30/97 20:35		16.3	1.3	9.2	0.48	496	FA
12/2/97 16:45		15.2	1.9	9.8	0.24	411	SJ
12/9/97 20:15		11.2	3.5	11.5	0	475	FA
12/13/97 16:29		10.8	4.3	9	0	886	SJ

**WURTSMITH PILOT TESTING**  
**SS06**  
**VOC RESULTS FROM SUMMA CANNISTER SAMPLING**

		SVE Sample Port 1	SVE Sample Port 1 Duplicate	Well MP6
Sample Name:				
Sample Date:		11/18/97	11/18/97	11/24/97
Sample Time:		13:27	18:15	20:30
Target Compounds	Units			
Benzene	ppb v/v	ND<10.0	1800	5400
Ethylbenzene	ppb v/v	970	2300	21000
m,p-Xylene	ppb v/v	2000	4700	46000
o-Xylene	ppb v/v	ND<10.0	ND<20.0	3200
4-Ethyl Toluene	ppb v/v	240	700	5100
1,3,5-Trimethylbenzene	ppb v/v	240	690	3400
1,2,4-Trimethylbenzene	ppb v/v	710	2300	8600
Tentatively Identified				
2,4-Dimethylpentane	ppb v/v	3400 NJ	8800 NJ	
2-Methylhexane	ppb v/v	9800 NJ	26000 NJ	200000
2-Methylpentane	ppb v/v	9700 NJ	27000 NJ	11000
3-Methylhexane	ppb v/v		42000 NJ	18000
3-Methylpentane	ppb v/v	6600 NJ	19000 NJ	8800
C6 Unsaturated Hydrocarbon	ppb v/v	16000 J	40000 J	
C7 Hydrocarbon	ppb v/v		3800 J	
C7 Hydrocarbon (2)	ppb v/v	18400 J		
C7 Hydrocarbon (3)	ppb v/v			44300
C7 Unsaturated Hydrocarbon	ppb v/v	4300 J		
C8 Hydrocarbon (3)	ppb v/v	14700 J	33400 J	41700
C8 Unsaturated Hydrocarbon	ppb v/v		6300 J	
Dimethyl cyclohexane isomer	ppb v/v		7100 J	7500
Dimethyl cyclopentane isomer	ppb v/v	3600 J		
Hexane	ppb v/v	7200 NJ	19000 NJ	
Methylcyclohexane (2)	ppb v/v	22000 NJ	50000 NJ	
Methylcyclopentane	ppb v/v			26000
Trimethyl cyclohexane isomer (2)	ppb v/v		6200 J	22000
Trimethyl cyclopentane isomer	ppb v/v		5000 J	
Trimethyl cyclopentane isomer (3)	ppb v/v	5800 J		
Total Volatiles (ppb v/v)		125660.0	306090.0	472000.0
Key:				
J = Estimated Value				
N = Tentatively Identified Compound				

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**EFFECTIVE RADIUS METHOD**

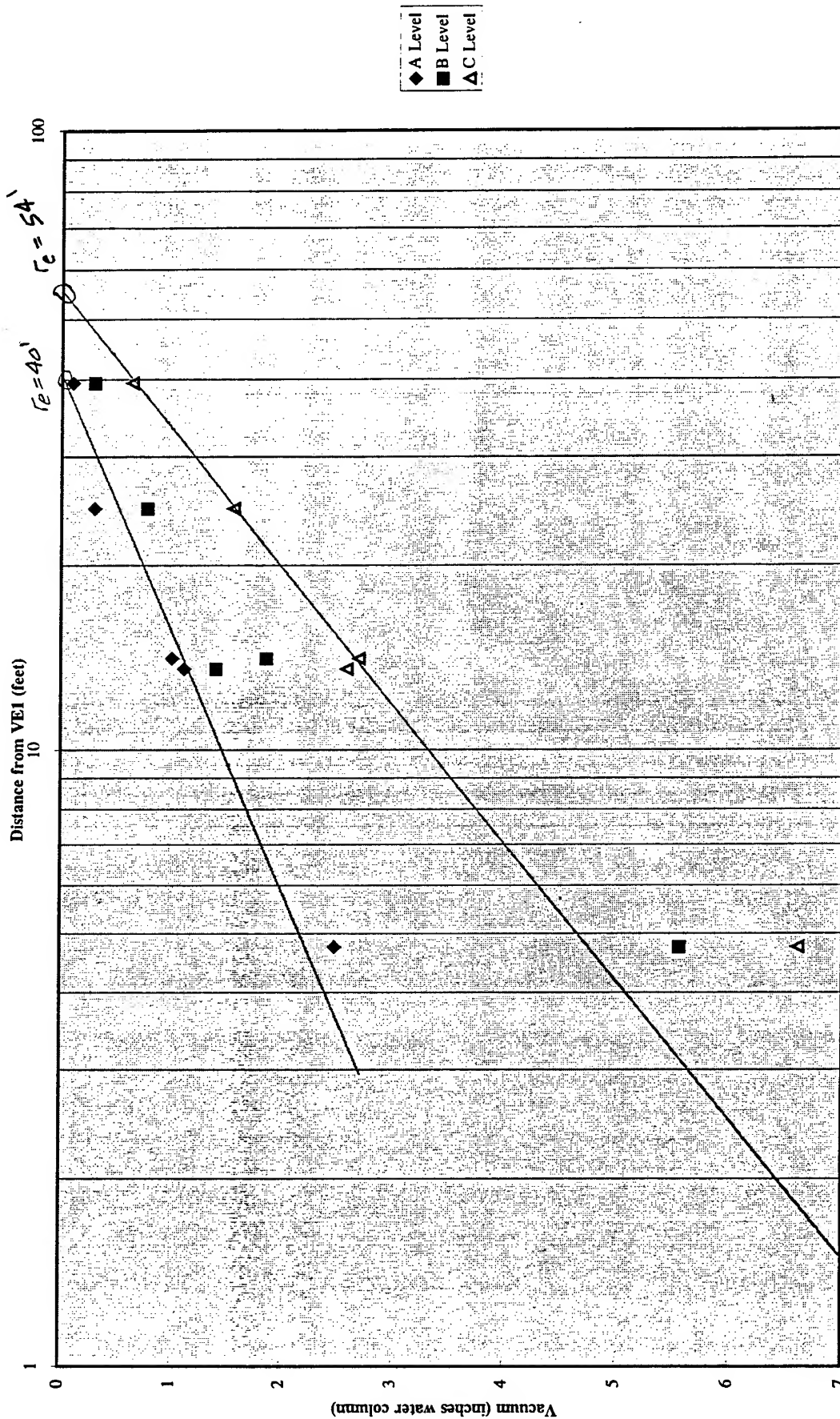
SS06eq1	n or b (ft)	P <sub>atm</sub> (psi)	Q <sub>v</sub> (scfm)	P <sub>atm</sub> -P* (in. H <sub>2</sub> O)	P <sub>atm</sub> -P (ft H <sub>2</sub> O)	r (ft)	r <sub>c</sub> (ft)	μ (kg/m,sec)	Air temp. °F	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
	22	14.26	154	18.03	4.88	4.75	54	1.78E-05	52	5.90E-11	59.8	3.31	0.05	142.84
	22	14.26	154	18.03	1.7	13.55	54	1.78E-05	52	9.60E-11	97.2	5.38	0.08	232.28
	22	14.26	154	18.03	1.85	14.09	54	1.78E-05	52	8.57E-11	86.8	4.81	0.07	207.45
	22	14.26	154	18.03	0.88	24.76	54	1.78E-05	52	1.04E-10	105.8	5.86	0.09	252.81
	22	14.26	154	18.03	0.35	39.53	54	1.78E-05	52	1.05E-10	106.4	5.89	0.09	254.10



# WURTSMITH AFB PILOT TESTING

SITE SS06

## STEADY STATE DISTANCE PLOT



**WURTSMITH AFB PILOT TESTING**  
**SITE SSO6**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**TWO WELL METHOD**

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (ft)	r <sub>2</sub> (ft)	P <sub>atm</sub> -P* (in. H <sub>2</sub> O)	Q <sub>v</sub> (scfm)	μ (kg/m,sec)	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	4.88	1.7	4.75	13.55	18.0	154	1.78E-05	39.7	2.20	3.34E-02	9.47E+01
MP1-MP3	4.88	1.85	4.75	14.09	18.0	154	1.78E-05	41.6	2.30	3.51E-02	9.94E+01
MP1-MP4	4.88	0.88	4.75	24.76	18.0	154	1.78E-05	49.6	2.75	4.18E-02	1.19E+02
MP1-MP5	4.88	0.35	4.75	39.53	18.0	154	1.78E-05	-56.2	-3.11	-4.73E-02	-1.34E+02
MP2-MP3	1.7	1.85	13.55	14.09	18.0	154	1.78E-05	31.2	1.73	2.63E-02	7.46E+01
MP2-MP4	1.7	0.88	13.55	24.76	18.0	154	1.78E-05	88.0	4.87	7.41E-02	2.10E+02
MP2-MP5	1.7	0.35	13.55	39.53	18.0	154	1.78E-05	94.9	5.25	7.99E-02	2.27E+02
MP3-MP4	1.85	0.88	14.09	24.76	18.0	154	1.78E-05	69.6	3.85	5.86E-02	1.66E+02
MP3-MP5	1.85	0.35	14.09	39.53	18.0	154	1.78E-05	82.3	4.56	6.93E-02	1.97E+02
MP4-MP5	0.88	0.35	24.76	39.53	18.0	154	1.78E-05	105.5	5.84	8.89E-02	2.52E+02

WURTSMITH AFB PILOT TESTING  
SITE SS06  
STEADY STATE SOIL PERMEABILITY CALCULATIONS  
PSEUDO STEADY STATE METHOD

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (m)	r <sub>2</sub> (m)	Q <sub>v</sub> (m <sup>3</sup> /min)	μ (kg/m,sec)	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	4.88	1.7	1.45	4.13	4.36	1.78E-05	6.20E-12	6.28	0.35	2.93E-04	0.83
MP1-MP3	4.88	1.85	1.45	4.29	4.36	1.78E-05	6.75E-12	6.84	0.38	3.19E-04	0.90
MP1-MP4	4.88	0.88	1.45	7.55	4.36	1.78E-05	7.76E-12	7.86	0.44	3.67E-04	1.04
MP1-MP5	4.88	0.35	1.45	12.05	4.36	1.78E-05	8.80E-12	8.91	0.49	4.16E-04	1.18
MP2-MP3	1.7	1.85	4.13	4.29	4.36	1.78E-05	-4.90E-12	-4.96	-0.27	-2.32E-04	-0.66
MP2-MP4	1.7	0.88	4.13	7.55	4.36	1.78E-05	1.38E-11	14.01	0.78	6.54E-04	1.85
MP2-MP5	1.7	0.35	4.13	12.05	4.36	1.78E-05	2.46E-11	24.87	1.38	1.16E-03	3.29
MP3-MP4	1.85	0.88	4.29	7.55	4.36	1.78E-05	1.09E-11	11.07	0.61	5.17E-04	1.46
MP3-MP5	1.85	0.35	4.29	12.05	4.36	1.78E-05	1.29E-11	13.10	0.73	6.11E-04	1.73
MP4-MP5	0.88	0.35	7.55	12.05	4.36	1.78E-05	1.66E-11	16.82	0.93	7.85E-04	2.22

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Well	$W(u, r/B)$	$1/u$	$r/B$	Vacuum (match point)	Time (match point)	$r$ (ft)	$k_a$ (darcies)	$K_w$ (cm/sec)	$K_w$ (ft/day)	$n_a$	$K'w$ (cm/sec)
MP1A	1	1	0.62	2.20	0.028	5.11	33.50	2.82E-02	80	4.99	9.14E-03
MP1B	1	1	0.62	4.40	0.031	5.11	16.80	1.41E-02	40	0.27	4.57E-03
MP1C	1	1	0.87	7.60	0.042	5.11	9.69	8.17E-03	23.2	0.22	5.21E-03
MP1C(2)	1	1	0.62	2.80	0.027	5.11	15.49	1.31E-02	37.02	0.22	4.23E-03
MP3A	1	1	0.62	0.70	0.068	15.64	62.00	5.22E-02	148	0.24	1.81E-03
MP3B	1	1	0.87	1.50	0.110	15.64	28.90	2.44E-02	69.1	0.18	1.66E-03
MP3B(2)	1	1	0.62	1.00	0.089	15.64	43.40	3.66E-02	104	0.25	1.26E-03
MP3C	1	1	0.87	2.10	0.120	15.64	20.70	1.74E-02	49.4	0.14	1.19E-03
MP4A	1	1	0.36	0.17	0.041	24.27	255.00	2.15E-01	610	0.25	1.04E-03
MP4B	1	1	0.36	0.31	0.059	24.27	140.00	1.18E-01	334	0.19	5.71E-04
MP4C	1	1	0.62	0.80	0.130	24.27	70.00	5.90E-02	167	0.21	6.23E-05
MP5C	1	1	0.87	0.68	0.380	39.53	63.90	5.38E-02	153	0.22	5.73E-04

Air injection rate = 105.8 scfm  
 $u = 1.8E-5$  kg/m sec  
 $P_{atm} = 14.25$  psi  
vadose zone thickness = 22 feet

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**EFFECTIVE RADIUS METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1**

Assume: Steady state conditions ( $u < 0.01$ )  
 One dimensional flow

Equation: 
$$k_a = \frac{Q_v P^* u}{\pi b} \frac{\ln(r_e/r)}{P^2 - P_{atm}^2}$$

where:

- $Q_v$  = volumetric flow rate ( $L^3/T$ )
- $P^*$  = absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )
- $P$  = absolute pressure at the observation well. ( $M/LT^2$ )
- $P_{atm}$  = atmosphere pressure (absolute) dury test ( $M/LT^2$ )
- $u$  = dynamic viscosity of soil gas ( $M/LT$ )
- $\pi$  = 3.1415926
- $b$  = Aquifer thickness (L)
- $r_e$  = radius of pressure influence (L)
- $r$  = Distance from VE1 to observation well (L)
- $k_a$  = apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	154.00 scfm	=	0.072674 m <sup>3</sup> /sec
	$P_{atm}$ =	29.05 in Hg	=	98335.26 kg/m sec <sup>2</sup>
	$P^*_{diff}$ =	18.03 in H2O	=	4489.348 kg/m sec <sup>2</sup>
at 46F	$u$ =	1.78E-05 kg/m sec		
	$b$ =	22 feet	=	6.7056 m
	$r_e$ =	54 feet	=	16.4592 m
	$r$ =	4.75 feet	=	1.4478 m
	$P_{diff}$ =	4.88 in H <sub>2</sub> O	=	1215.087 kg/m sec <sup>2</sup>

Calculated:	$P^*$ =	93845.91 kg/m sec <sup>2</sup>		
	$P$ =	97120.17 kg/m sec <sup>2</sup>		
	$k_a$ =	5.9E-11 m <sup>2</sup>	=	59.79054 darcies
	$K_a$ =	3.310602 cm/sec		
	$K_w$ =	5.04E-02 cm/sec	=	142.8429 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**TWO WELL STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2  
**MP1-MP2**

Assume: Steady state conditions ( $u < 0.01$ )  
One dimensional flow

Equation: 
$$k_a = \frac{Q_v P^* \mu}{\pi b} \frac{\ln(r_2/r_1)}{P_2^2 - P_1^2}$$

where:  $Q_v$  = volumetric flow rate ( $L^3/T$ )  
 $P^*$  = absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )  
 $\mu$  = dynamic viscosity of soil gas ( $M/LT$ )  
 $\pi$  = 3.1415926  
 $b$  = Aquifer thickness (L)  
 $r_1$  = distance to observation well no. 1 (L)  
 $r_2$  = distance to observation well no. 2 (L)  
 $P_1$  = absolute pressure at well no. 1 ( $M/LT^2$ )  
 $P_2$  = absolute pressure at well no. 2 ( $M/LT^2$ )  
 $k_a$  = apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	154.00 scfm	=	0.072674 m <sup>3</sup> /sec
	$P_{atm}$ =	29.05 in Hg	=	98335.26 kg/m sec <sup>2</sup>
	$P^*_{diff}$ =	18.03 in H <sub>2</sub> O	=	4489.348 kg/m sec <sup>2</sup>
at 46F	$\mu$ =	1.78E-05 kg/m sec		
	$b$ =	22 feet	=	6.7056 m
	$r_1$ =	4.75 feet	=	1.4478 m
	$r_2$ =	13.55 feet	=	4.13004 m
	$P_1$ diff =	4.88 in H <sub>2</sub> O	=	1215.087 kg/m sec <sup>2</sup>
	$P_2$ diff =	1.7 in H <sub>2</sub> O	=	423.2885 kg/m sec <sup>2</sup>

Calculated:	$P^*$ =	93845.91 kg/m sec <sup>2</sup>		
	$P_1$ =	97120.17 kg/m sec <sup>2</sup>		
	$P_2$ =	97911.97 kg/m sec <sup>2</sup>		
	$k_a$ =	3.91E-11 m <sup>2</sup>	=	39.65263 darcies
	$K_a$ =	2.195566 cm/sec		
	$K_w$ =	3.34E-02 cm/sec	=	94.7323 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**PSEUDO STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1-MP2**

Assume: steady state conditions  
One dimensional flow

Equation: 
$$k_a = \frac{Q_v \mu}{4 \pi b} \frac{\ln(r_2/r_1)}{P_2 - P_1}$$

where:  $Q_v$  = volumetric flow rate ( $L^3/T$ )

$\mu$  = dynamic viscosity of soil gas (M/LT)

$\pi$  = 3.1415926

$b$  = Aquifer thickness (L)

$r_1$  = distance to observation well no. 1 (L)

$r_2$  = distance to observation well no. 2 (L)

$P_1$  = absolute pressure at well no. 1 (M/LT<sup>2</sup>)

$P_2$  = absolute pressure at well no. 2 (M/LT<sup>2</sup>)

$k_a$  = apparent air permeability (L<sup>2</sup>)

Input:	$Q_v$ =	154.00 scfm	=	0.072674 m <sup>3</sup> /sec
	$P_{atm}$ =	29.05 in Hg	=	98335.26 kg/m sec <sup>2</sup>
Temp (F)				
52	$\mu$ =	1.78E-05 kg/m sec		
	$b$ =	22 feet	=	6.7056 m
	$r_1$ =	4.75 feet	=	1.4478 m
	$r_2$ =	13.55 feet	=	4.13004 m
	$P_1$ diff =	4.88 in H <sub>2</sub> O	=	1215.087 kg/m sec <sup>2</sup>
	$P_2$ diff =	1.7 in H <sub>2</sub> O	=	423.2885 kg/m sec <sup>2</sup>

Calculated:

$P_1$ =	97120.17 kg/m sec <sup>2</sup>		
$P_2$ =	97911.97 kg/m sec <sup>2</sup>		
$k_a$ =	6.20E-12 m <sup>2</sup>	=	6.279867 darcies
$K_a$ =	0.347716 cm/sec		
$K_w$ =	5.29E-03 cm/sec	=	15.00294 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Transient Solution for One Dimensional Radial Flow  
 Soil Vapor Extraction Pilot Testing  
 MP1A

Assume: One dimensional flow

Equations:  $ka = \frac{Qv u}{4 \pi b} \frac{W(u/B)}{(P - Patm)}$   $na = \frac{4 ka (P - Patm) t u}{r^2 u}$   $B^2 = \frac{Kr m m'}{K'}$

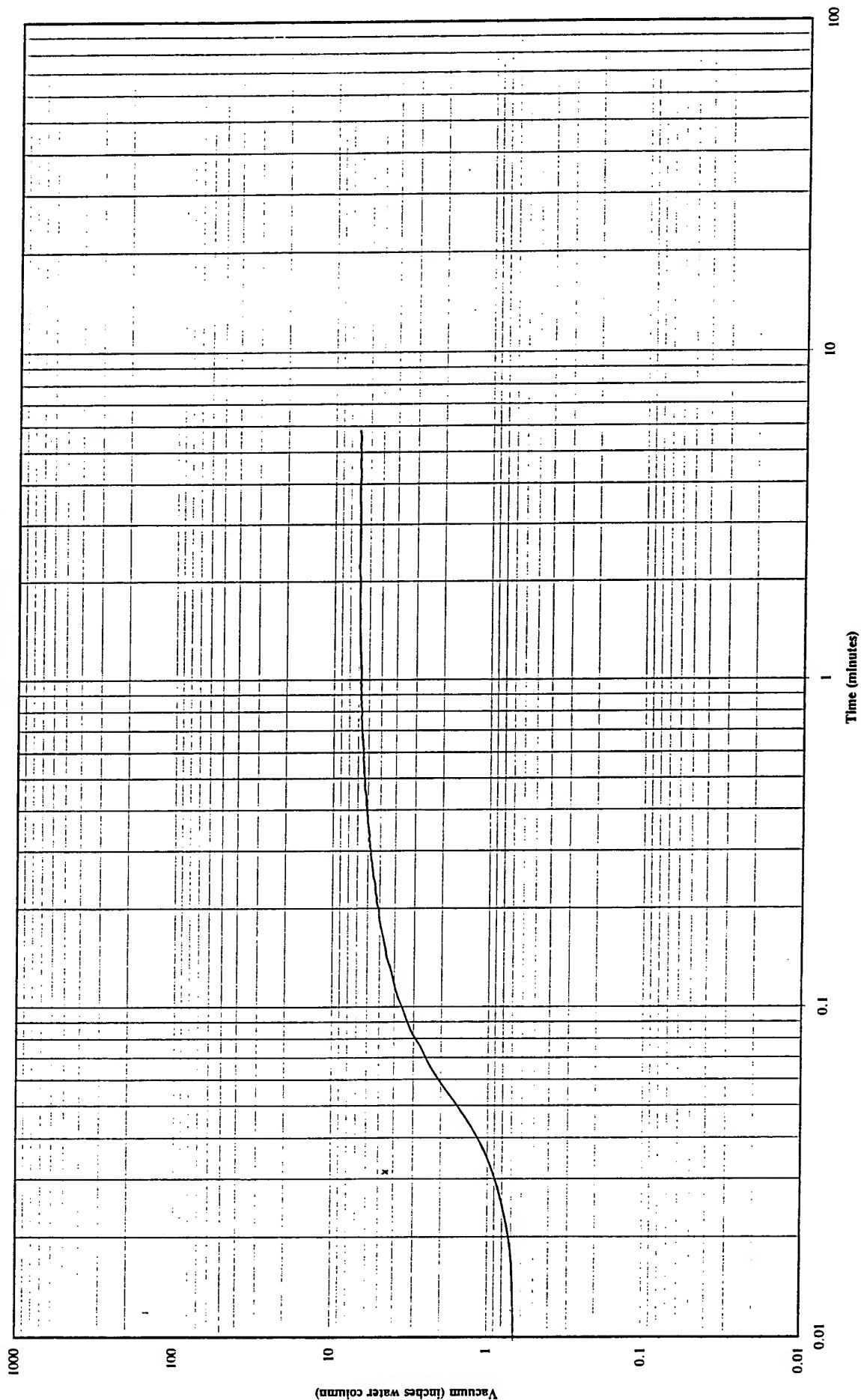
where:  $Qv$  = volumetric flow rate ( $L^3/T$ )  
 $P - Patm$  = guage vacuum obtained at match point ( $H_2O''$ )  
 $u$  = dynamic viscosity of soil gas ( $M/LT$ )  
 $\pi$  = 3.1415926  
 $b$  = vadose zone thickness ( $L$ )  
 $(u, r/B)$  = leaky well function (obtained from type curve match point)  
 $1/u$  = obtained from match point on type curve  
 $t$  = time obtained from type curve match point  
 $Patm$  = absolute atmospheric pressure  
 $ka$  = apparent air permeability ( $L^2$ )  
 $Kr$  = vadose zone conductivity ( $L^2/T$ )  
 $K'$  = surface seal conductivity ( $L^2/T$ )  
 $r/B$  = type curve value  
 $m$  = vadose zone thickness ( $L$ )  
 $m'$  = surface seal thickness ( $L$ )

Input:  $Qv = 179.7 \text{ scfm} = 0.084803 \text{ m}^3/\text{sec}$   
 $(P - Patm) = 2.2 \text{ in H}_2\text{O} = 547.8 \text{ kg/m sec}^2$   
 $u = 1.80E-05 \text{ kg/m sec}$   
 $b = 22 \text{ feet} = 6.7056 \text{ m}$   
 $W(u, r/B) = 1$   
 $u = 1$   
 $r/B = 0.62 \text{ (from matching curve)}$   
 $t = 0.28 \text{ minutes} = 16.8 \text{ seconds}$   
 $Patm = 14.25 \text{ psi} = 98218.13 \text{ kg/msec}^2$   
 $r = 5.11 \text{ feet} = 1.55855 \text{ m}$   
 $m' = 1 \text{ feet} = 0.305 \text{ m}$

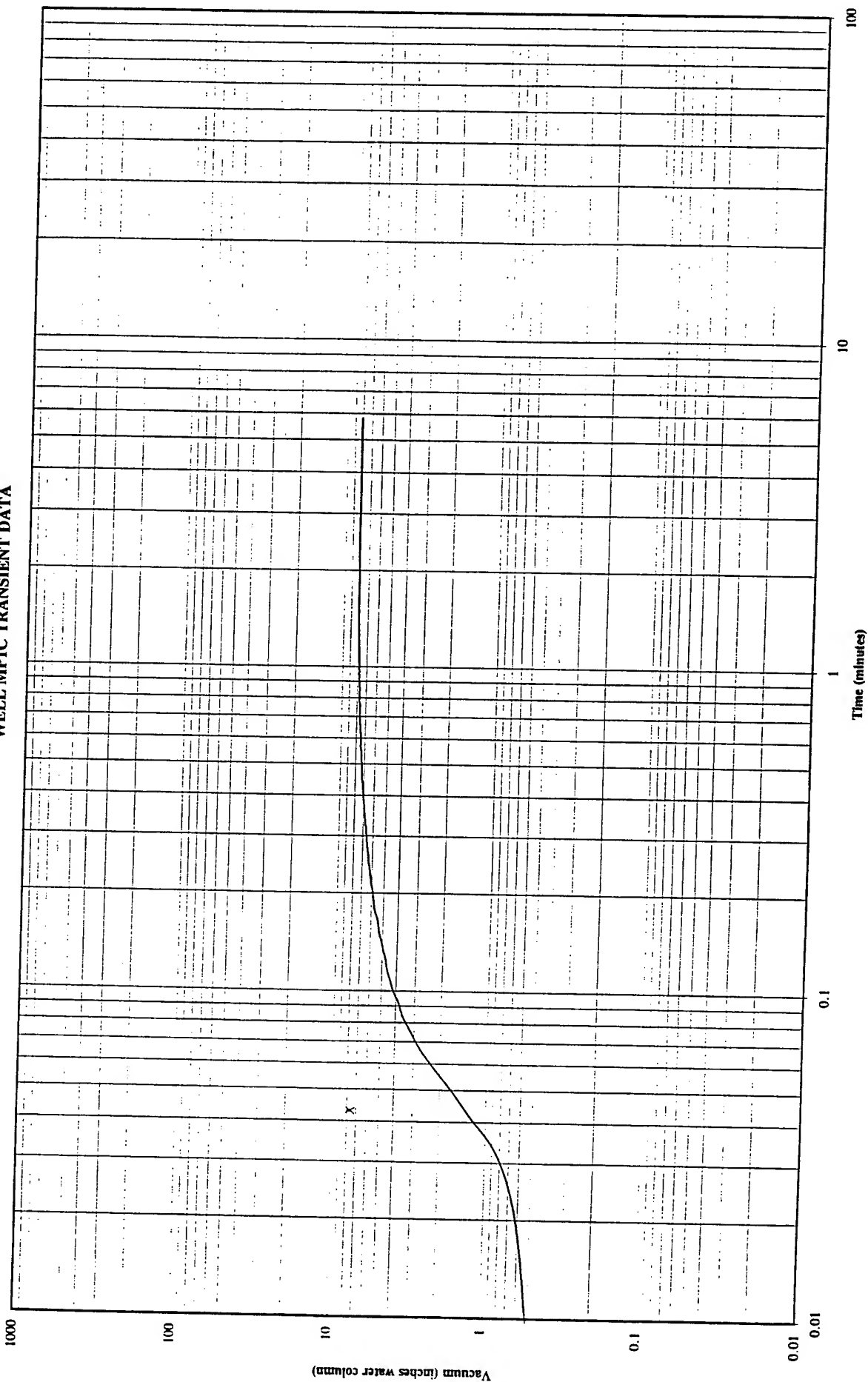
Calculated:  $ka = 3.31E-11 \text{ m}^2 = 33.49 \text{ darcies}$   
 $Ka = 1.85 \text{ cm/sec}$   
 $Kw = 2.82E-02 \text{ cm/sec} = 80.02 \text{ ft/day}$   
 $na = 4.991821$   
 $B = 8.24$   
 $K' = 9.14E-03 \text{ cm/sec} = 25.91 \text{ ft/day}$



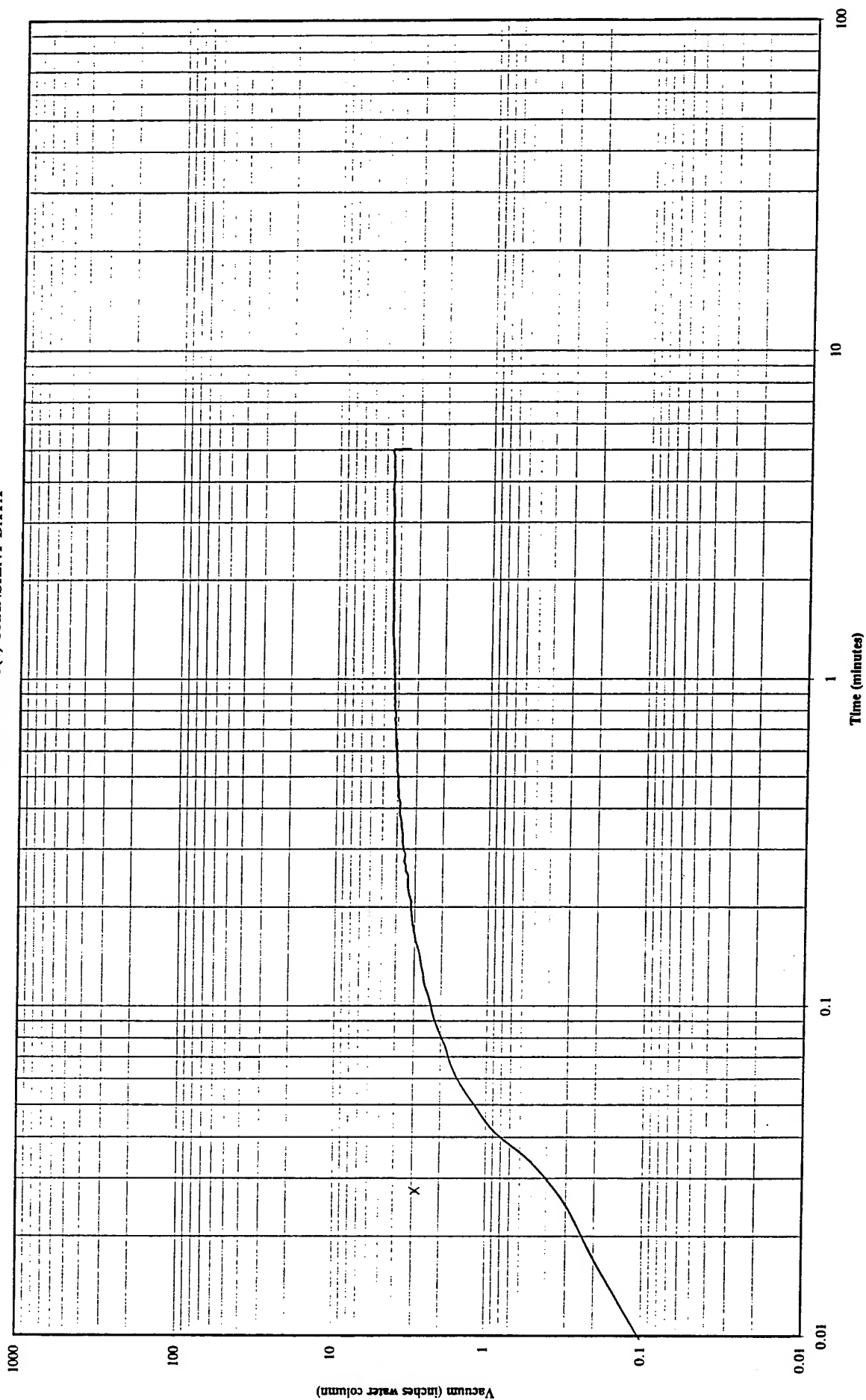
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP1B TRANSIENT DATA



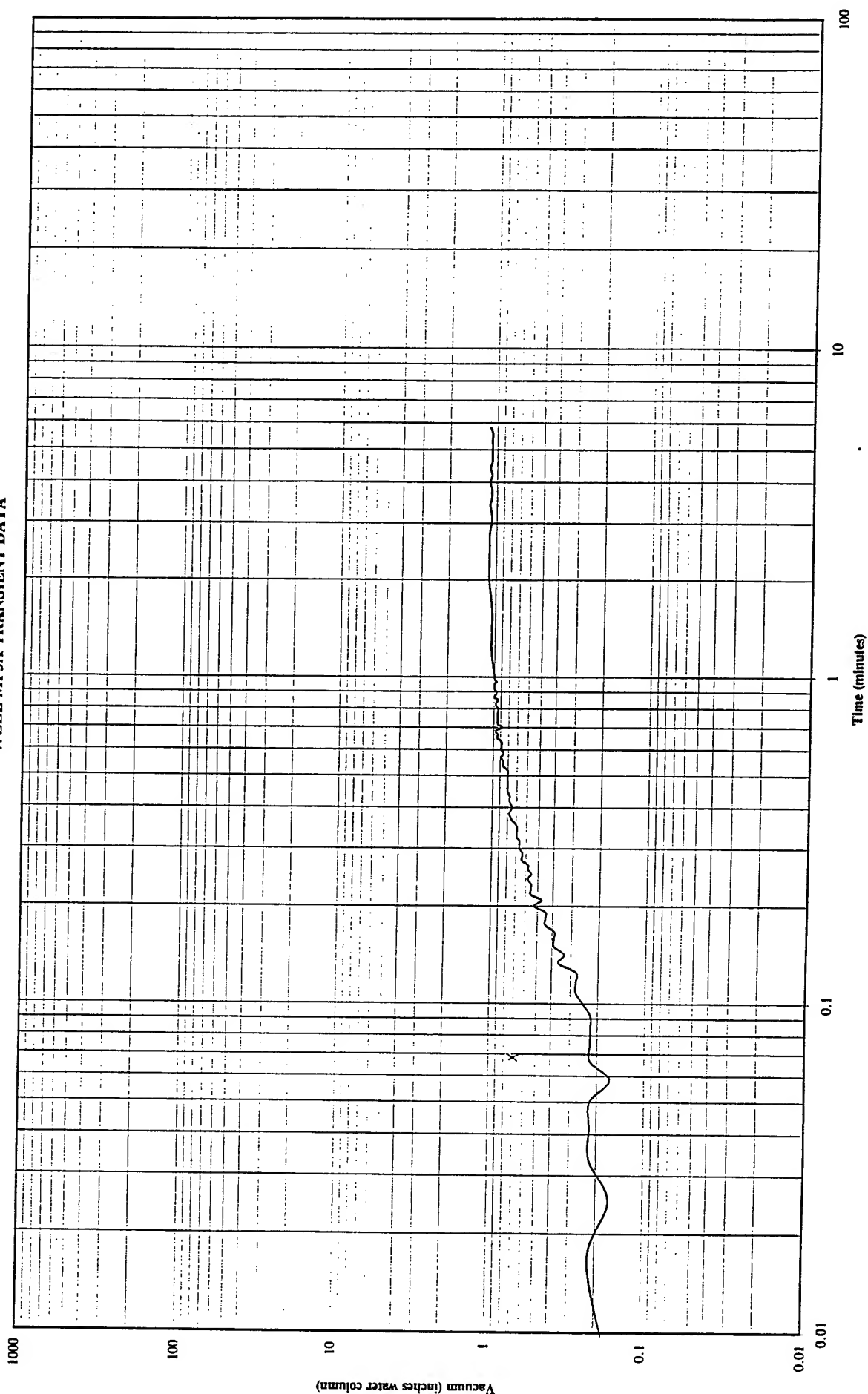
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MPIC TRANSIENT DATA



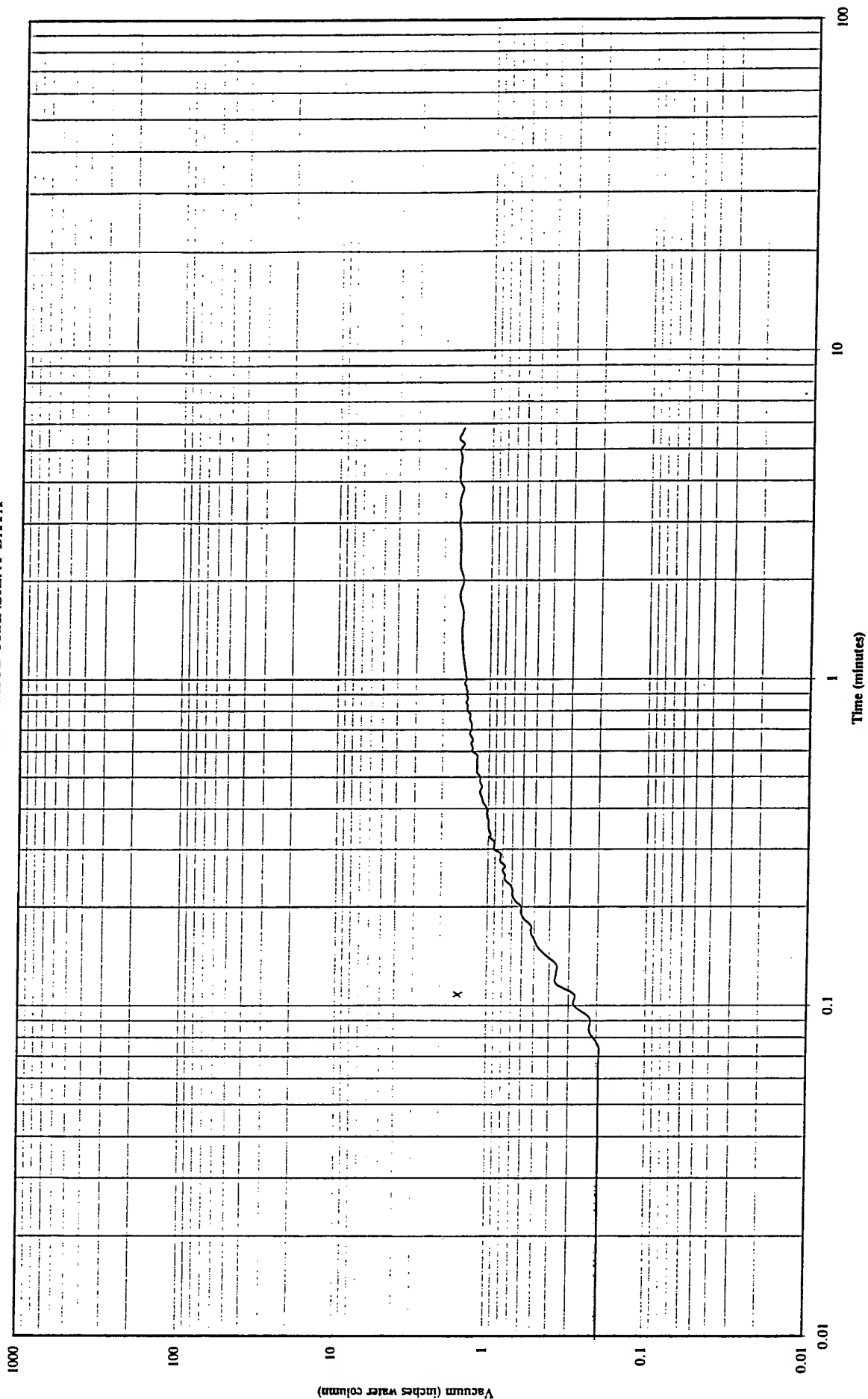
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MPIC(2) TRANSIENT DATA



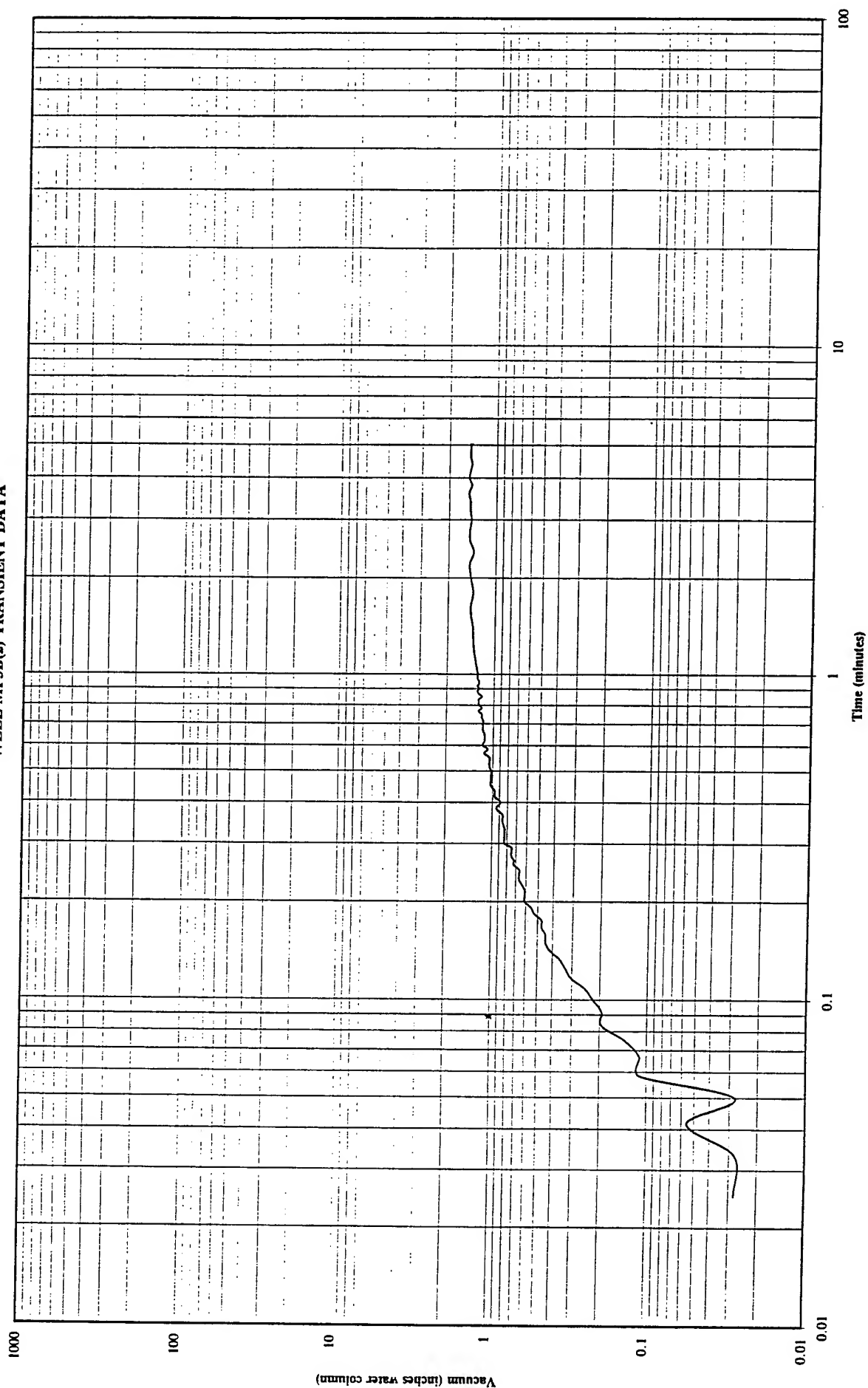
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP3A TRANSIENT DATA



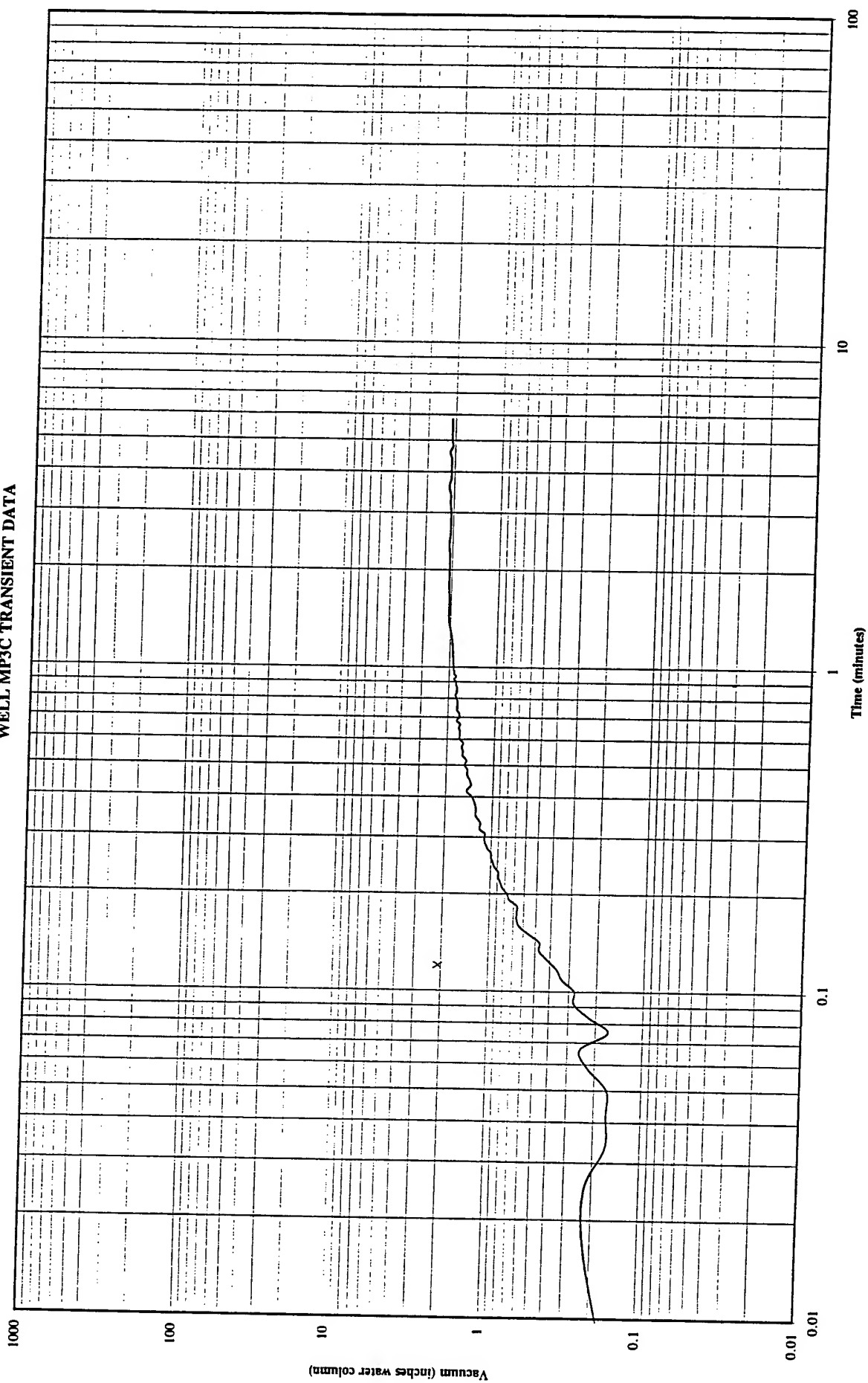
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP3B TRANSIENT DATA



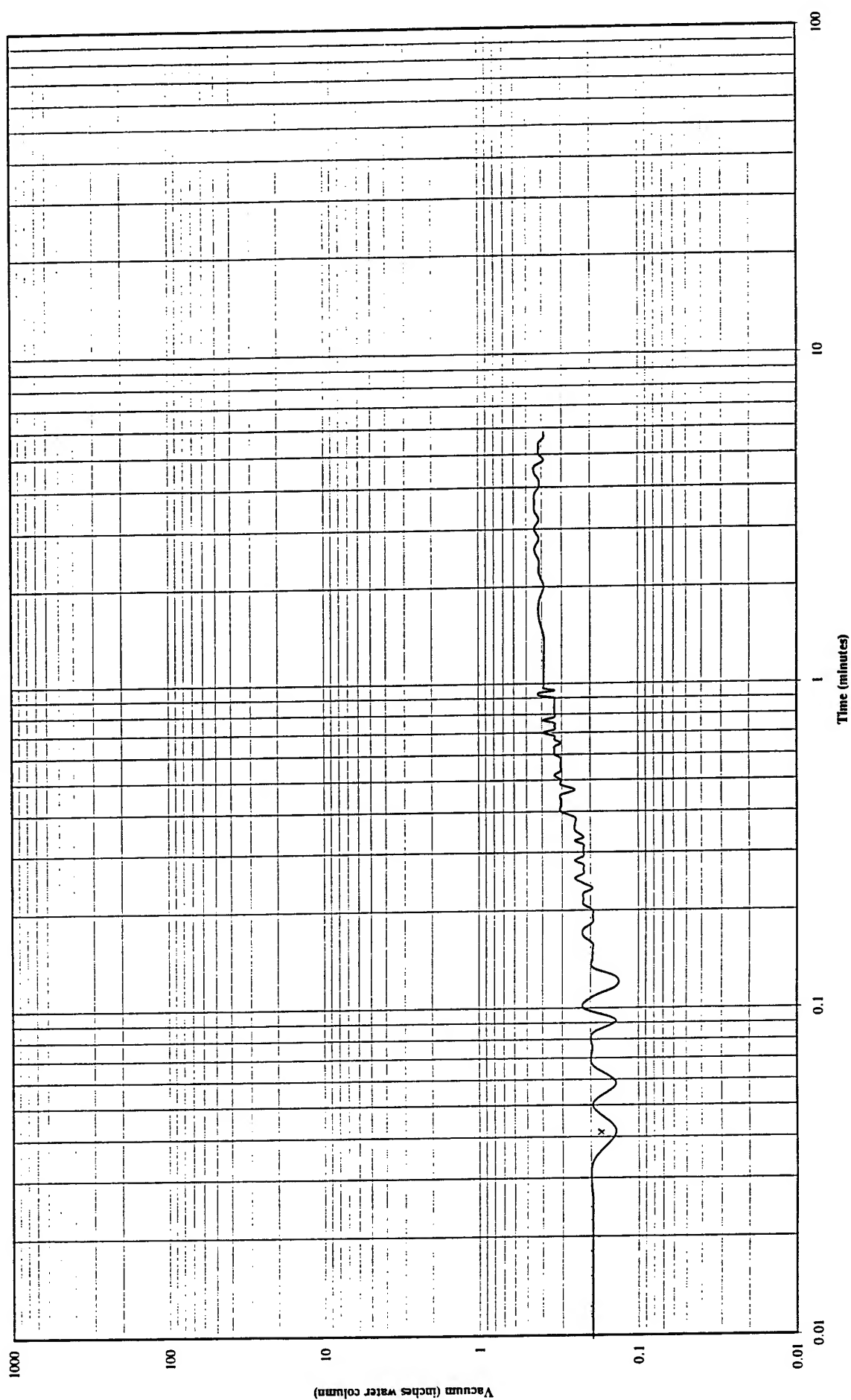
WURTSMITH AFB PILOT TESTING  
SITE SS06  
WELL MP3B(2) TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
SITE SS06  
WELL MP3C TRANSIENT DATA

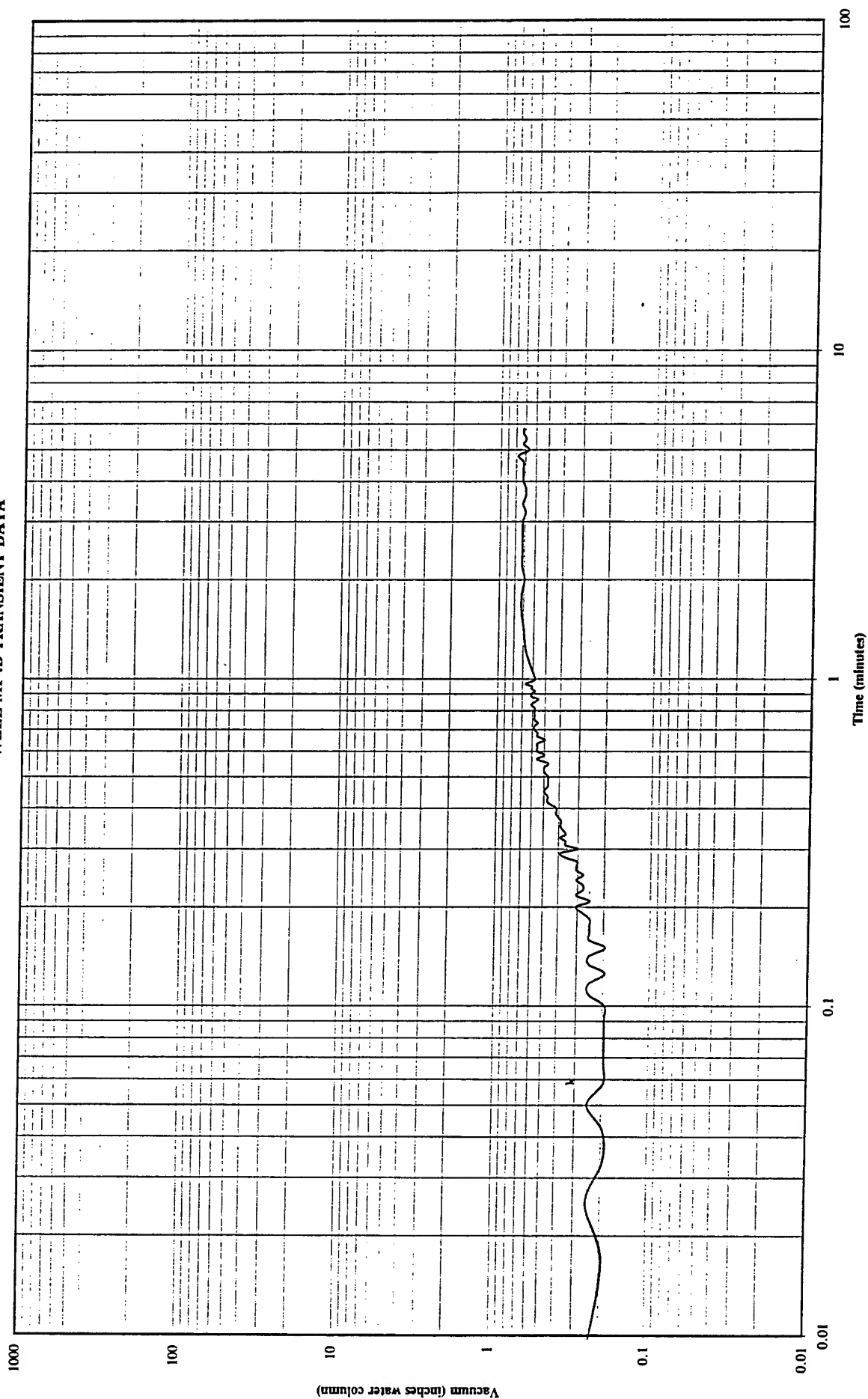


WURTSMITH AFB PILOT TESTING  
SITE SS06  
WELL MP4A TRANSIENT DATA

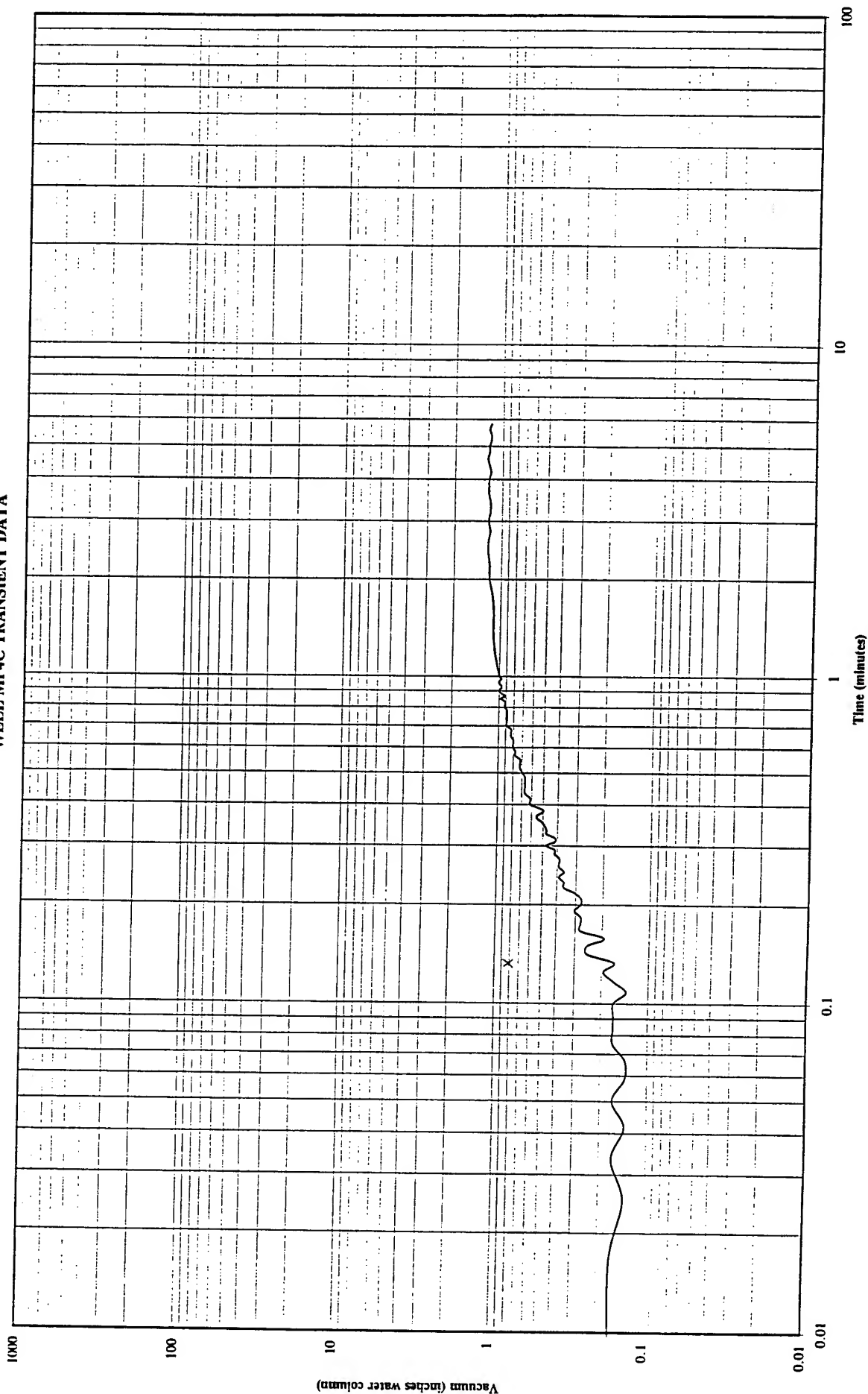




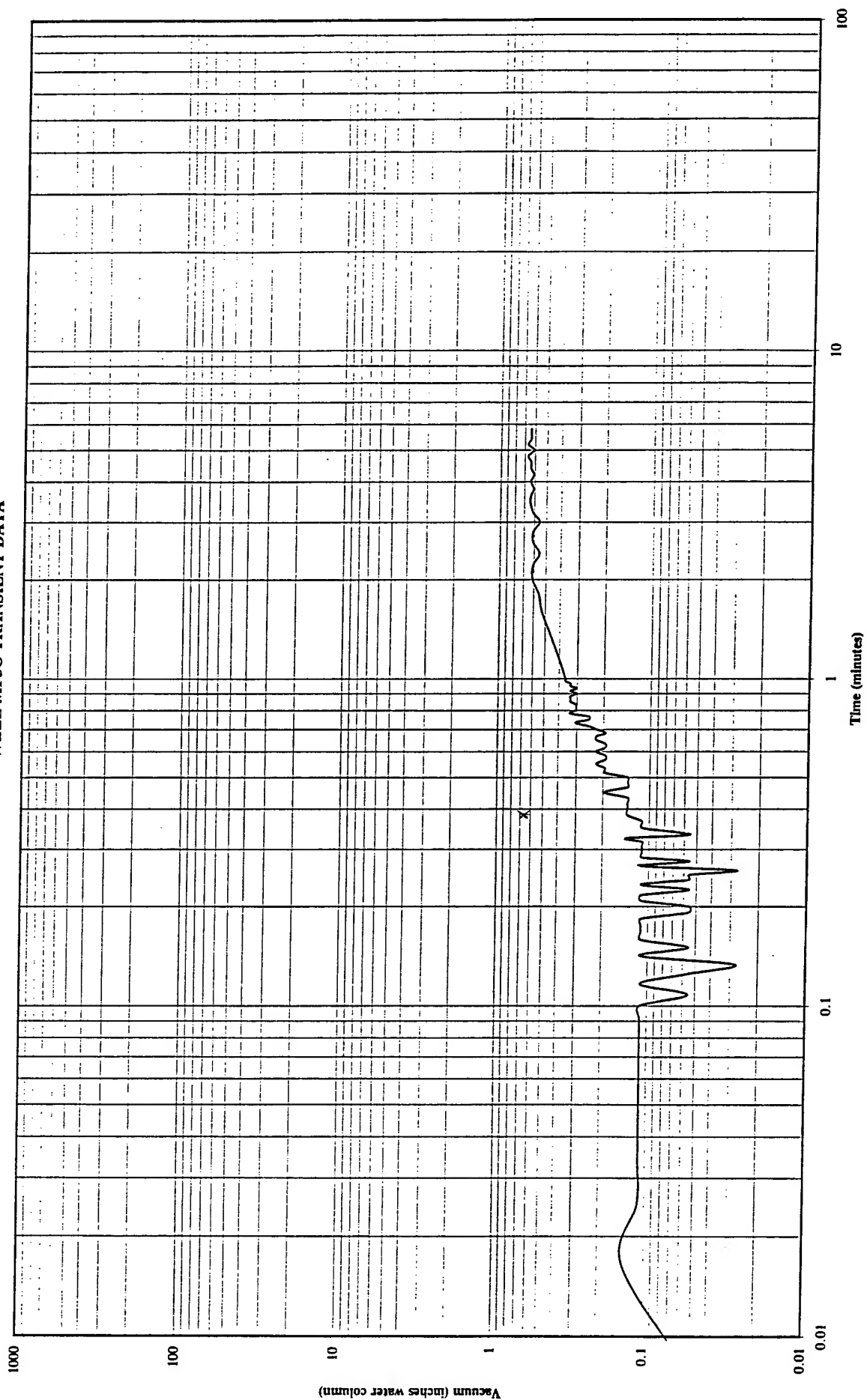
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP4B TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP4C TRANSIENT DATA



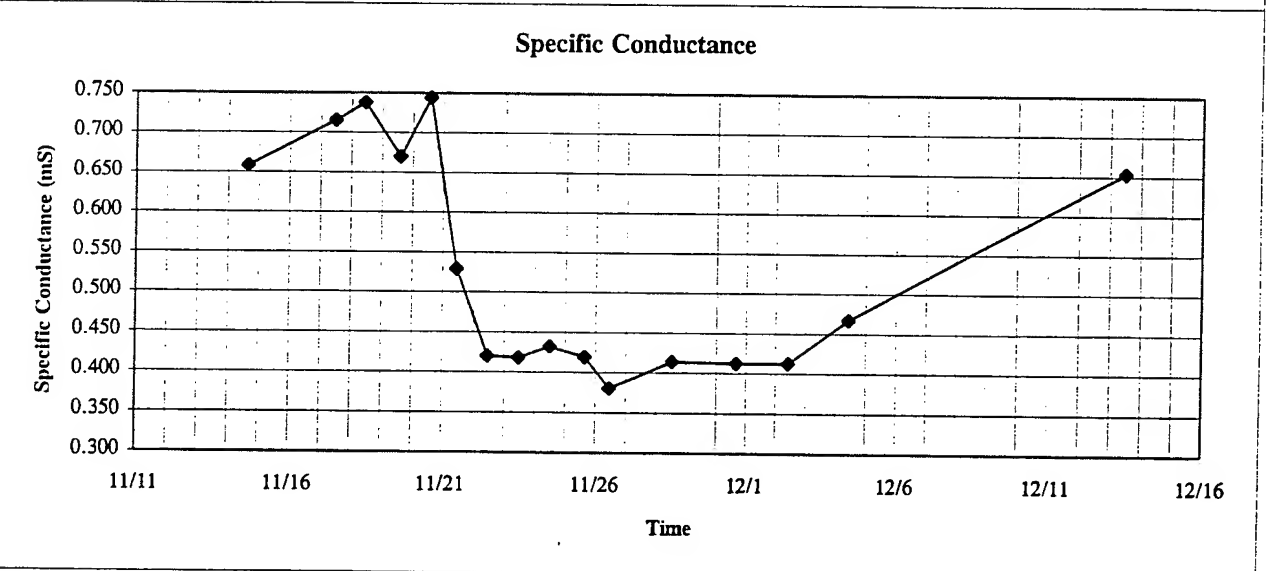
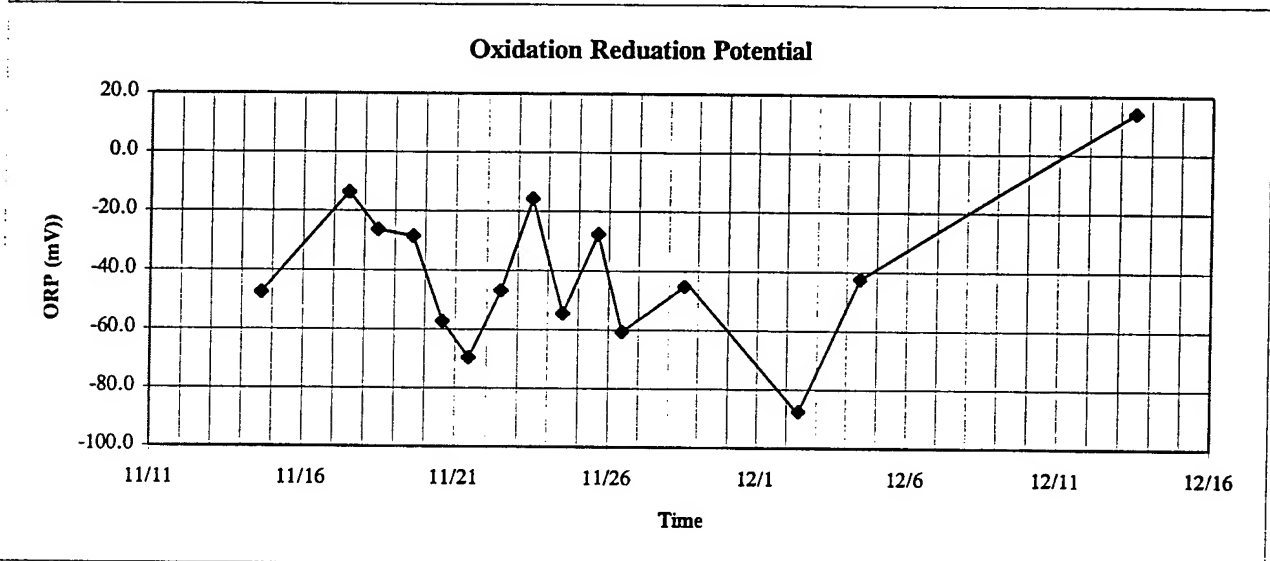
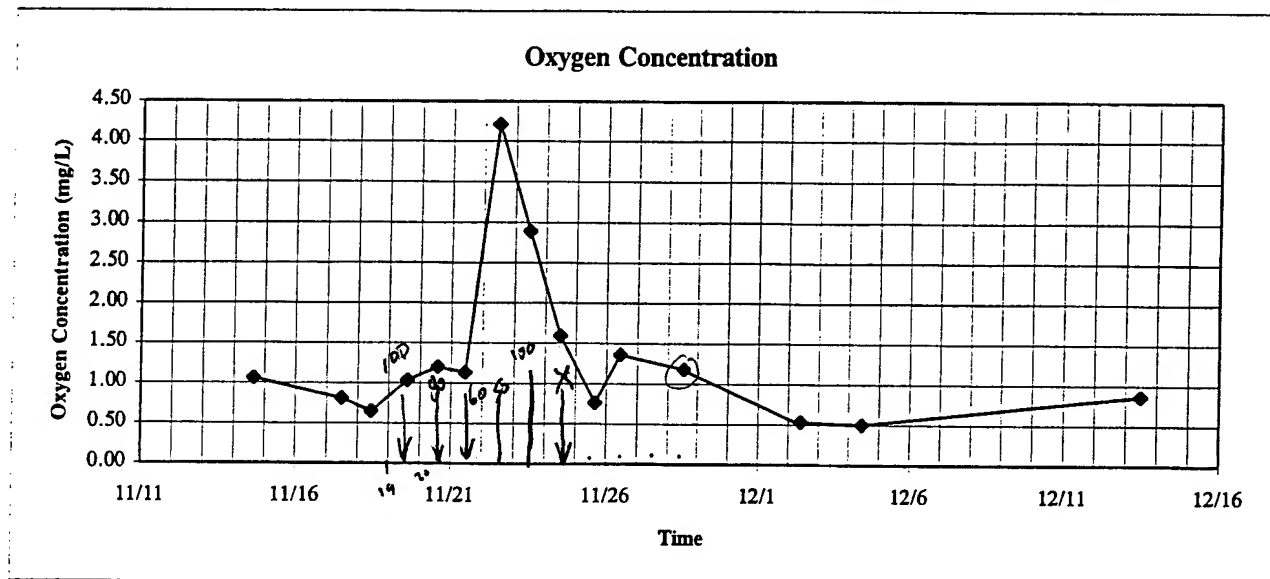
WURTSMITH AFB PILOT TESTING  
 SITE SS06  
 WELL MP5C TRANSIENT DATA



**WURTSMITH PILOT TESTING  
SITE SS06  
VACUUM STEP TEST, NOVEMBER 12, 1997**

Time	Vacuum at MP6 (inches H2O)	Flow Rate (scfm)
17:45	1.7	29.5
17:54	5.0	
17:55	5.0	49.5
18:07	5.0	48.2
18:15	10.0	
18:23	10.2	88.5
18:30	10.2	87.6
18:40	15.0	
18:50	14.6	122.4
19:13	14.5	120.4
19:21	19.1	
19:30	19.1	157.4
19:46	19.1	156.4
20:45	19.1	154.3
20:53	14.8	
20:56	14.9	121.6
21:06	14.9	121.6
21:09	10.0	
21:14	10.0	82.8
21:22	10.0	82.8
21:26	5.0	
21:31	5.0	44.6
21:57	5.0	44.6

# WURTSMITH AFB PILOT TESTING SITE SS06 GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1D

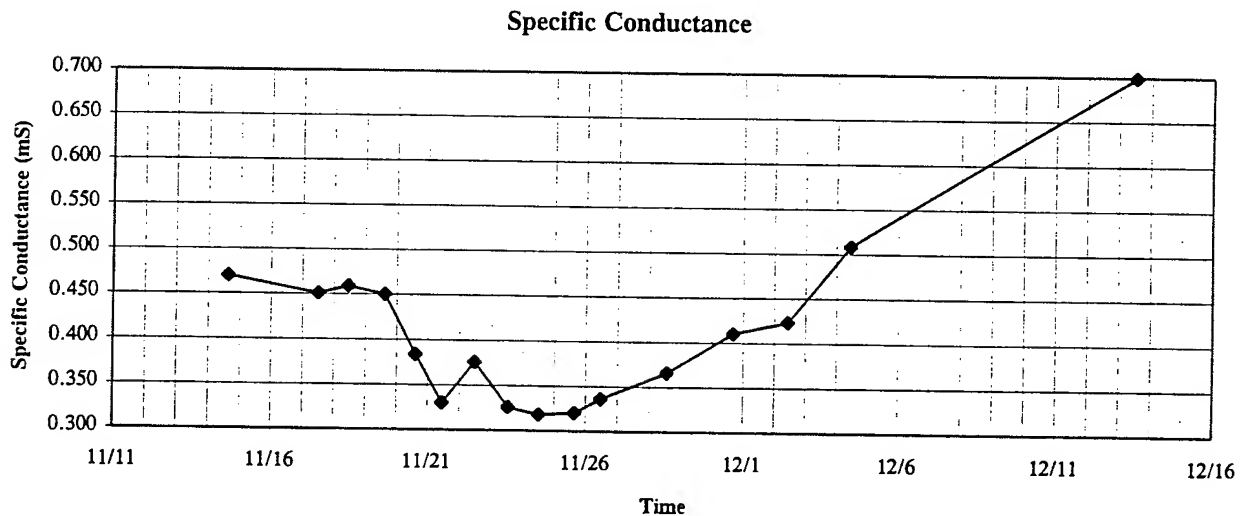
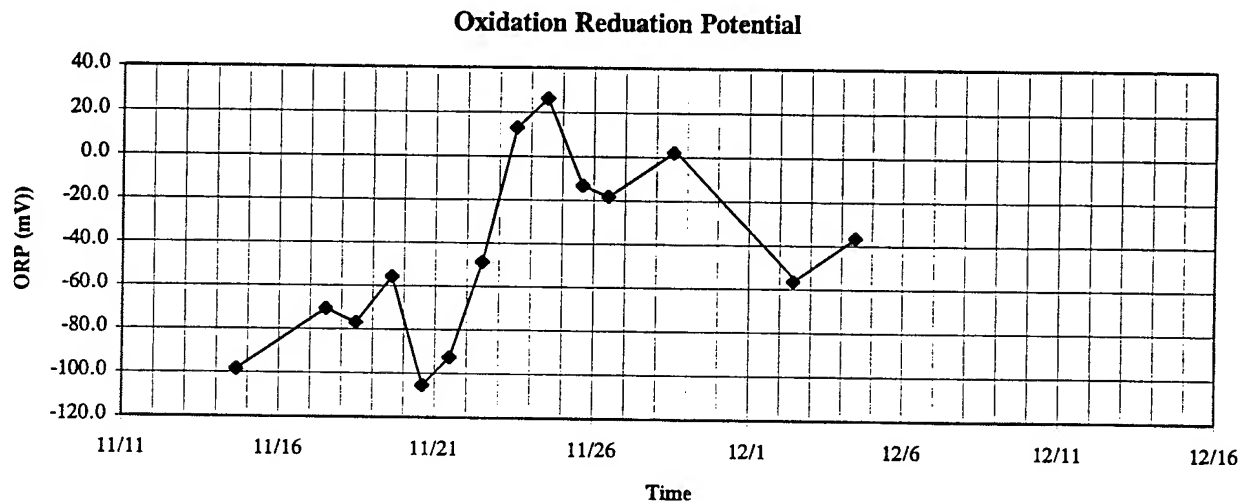
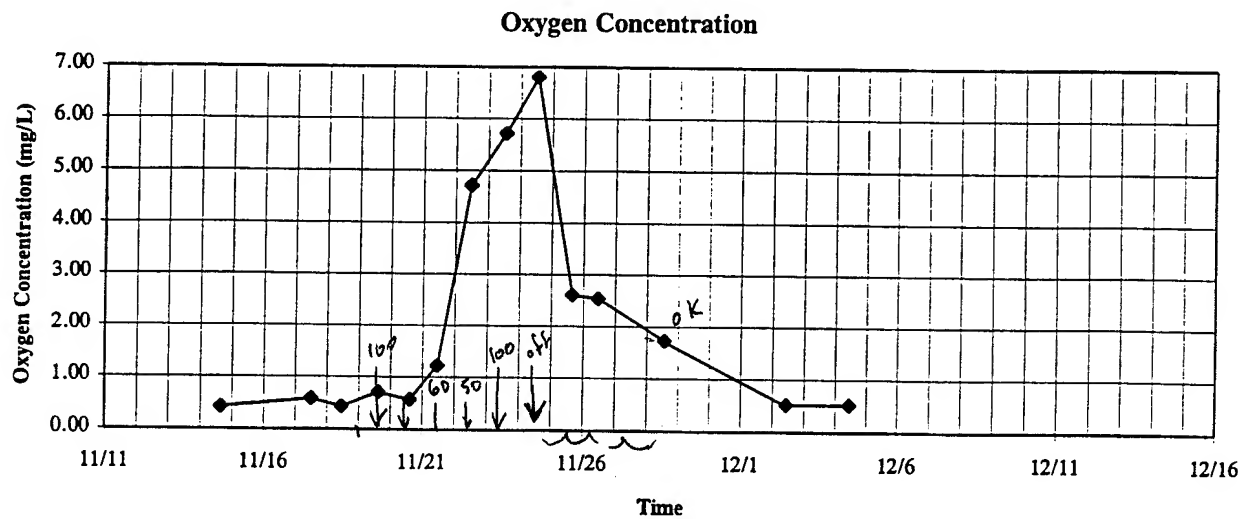


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1E**

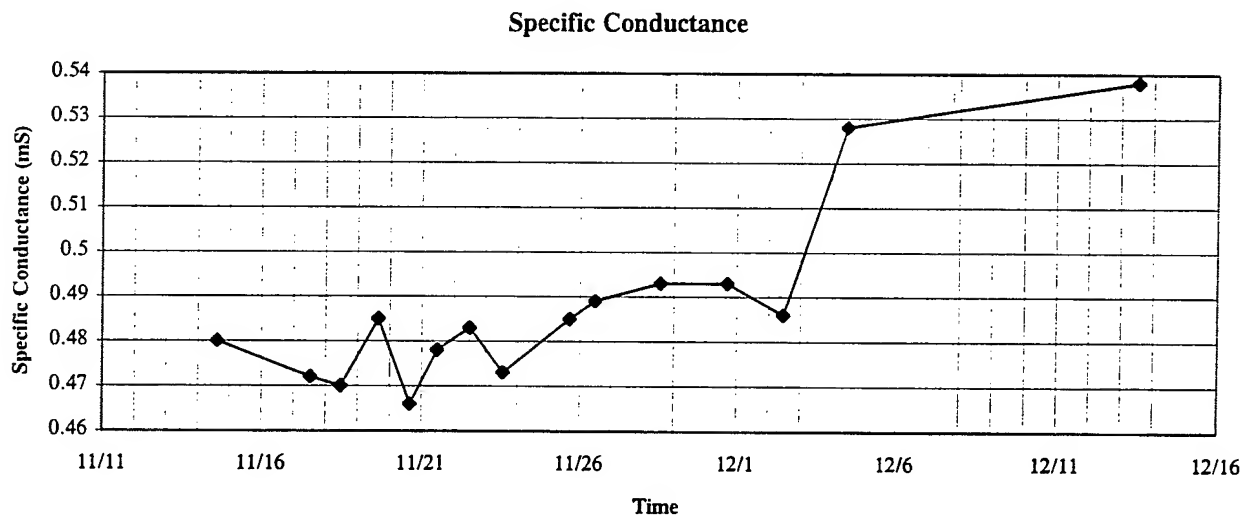
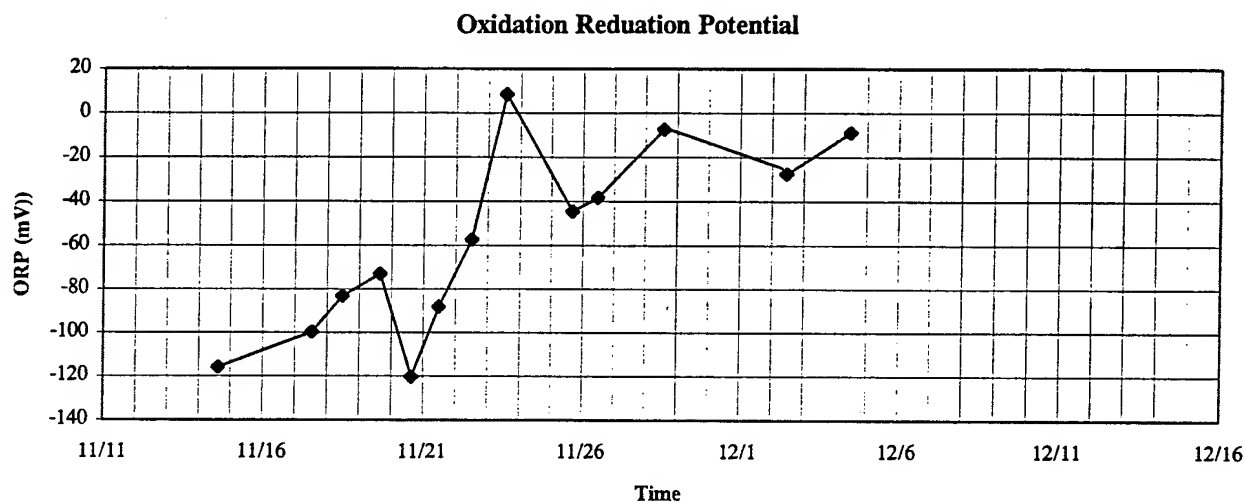
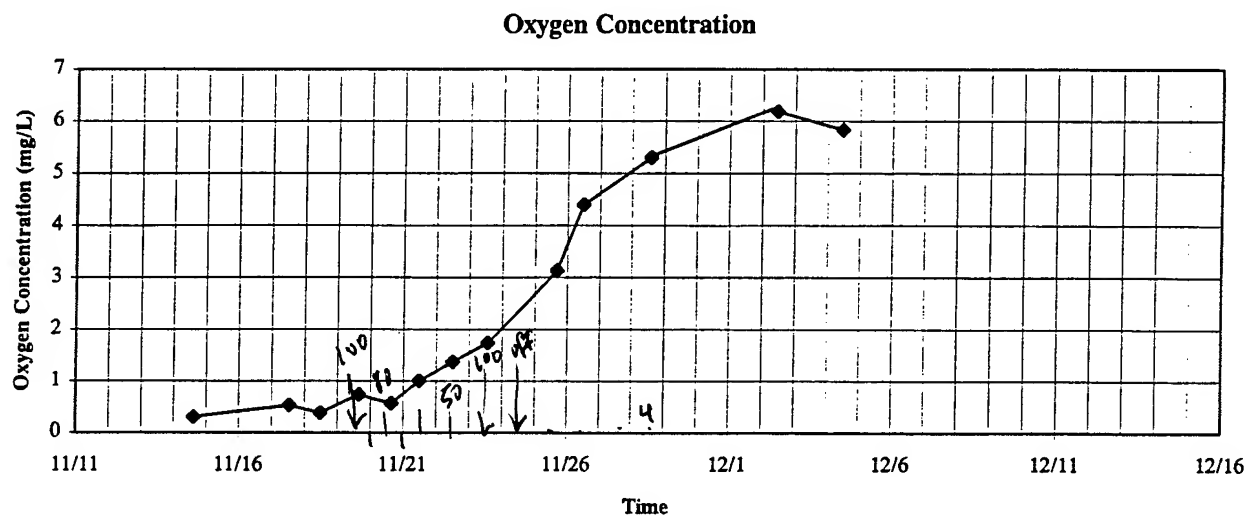


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MPIF**



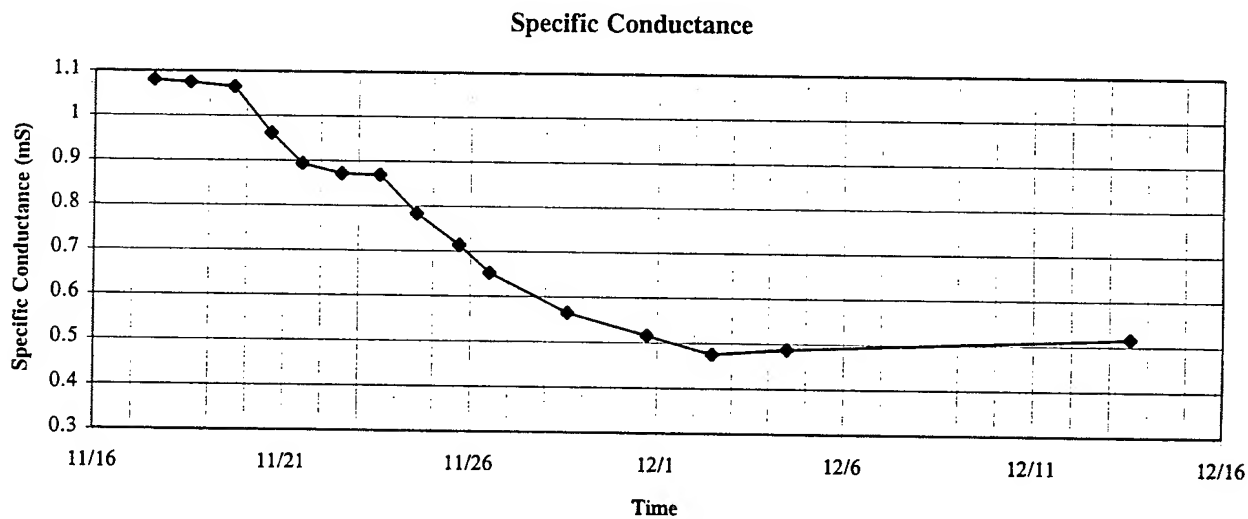
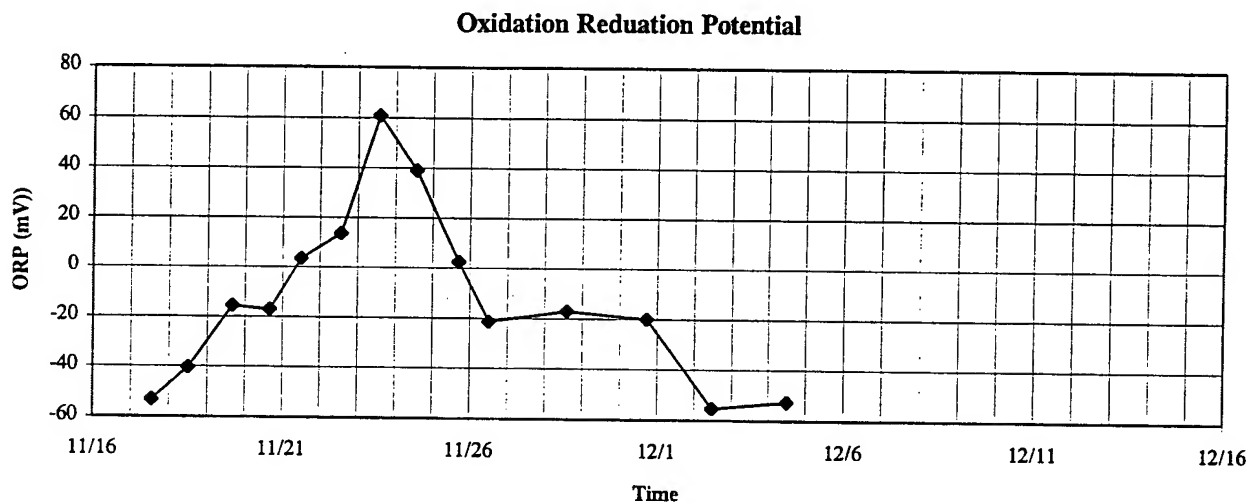
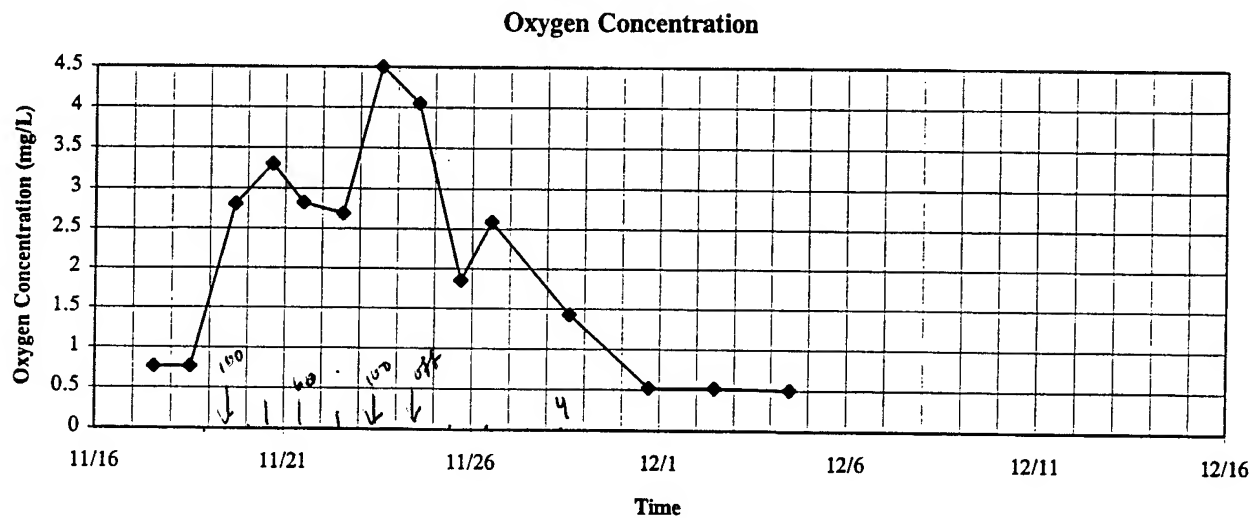
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2D**

*19' distance  
25' depth*



Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

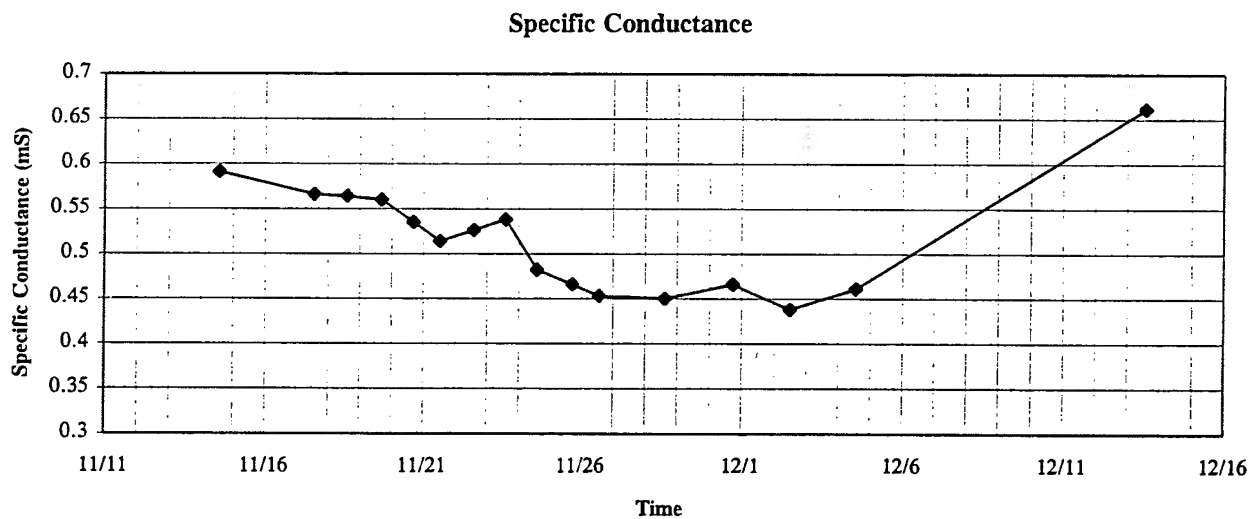
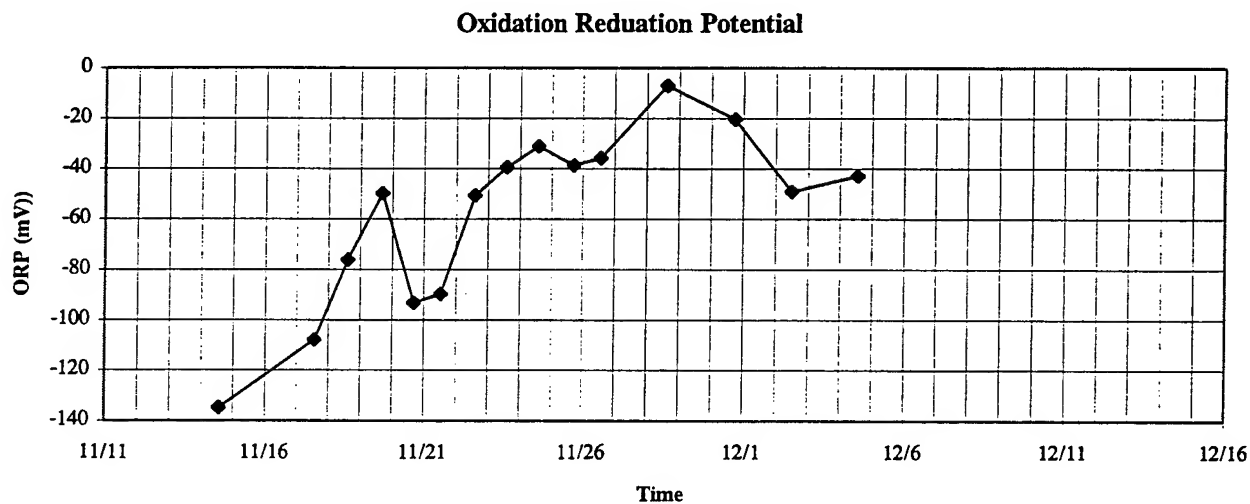
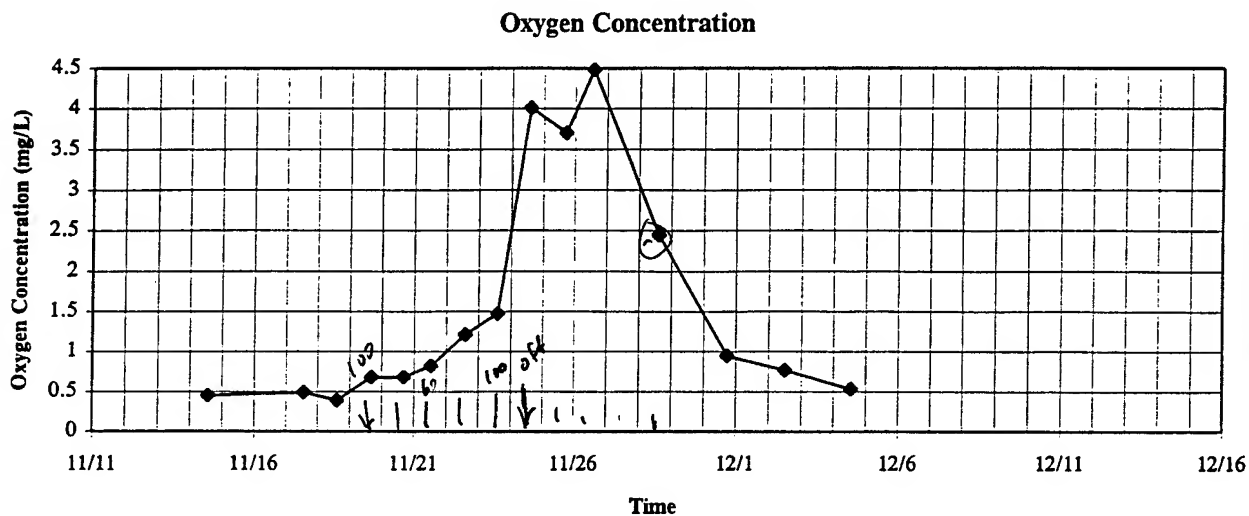
80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2E**

13' d:32  
30' d:12



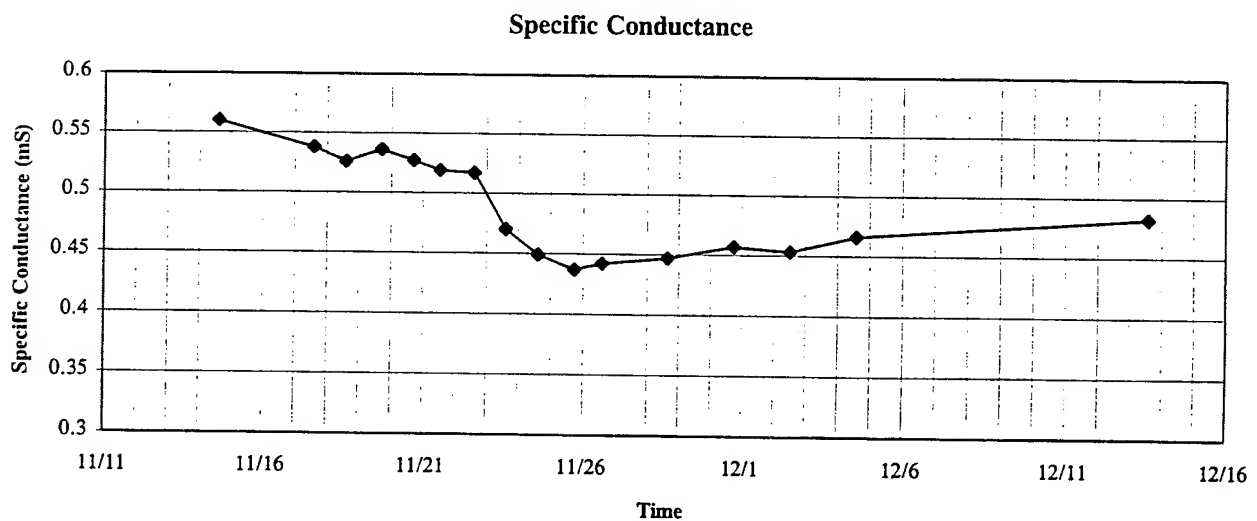
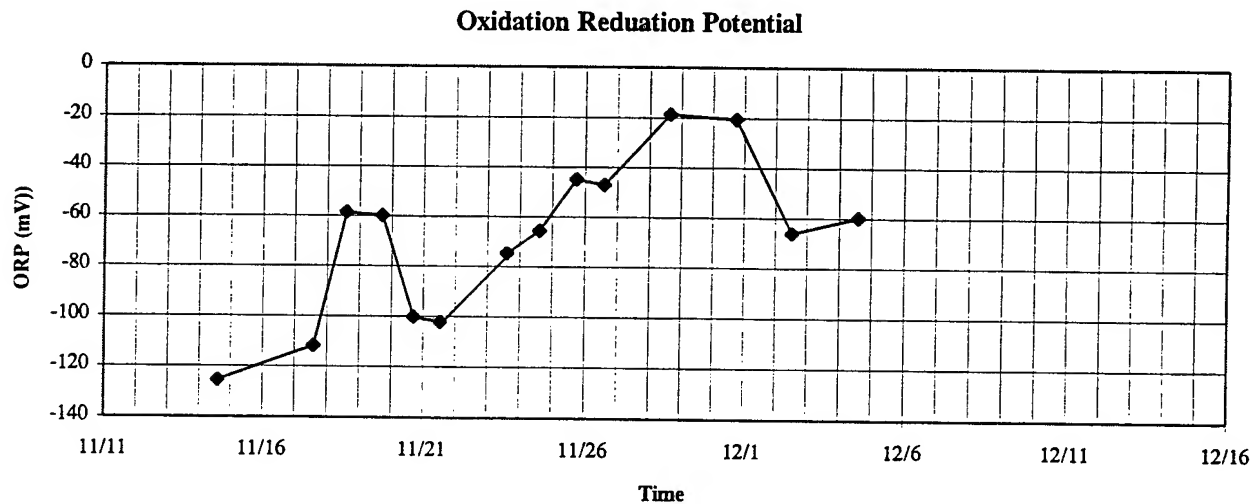
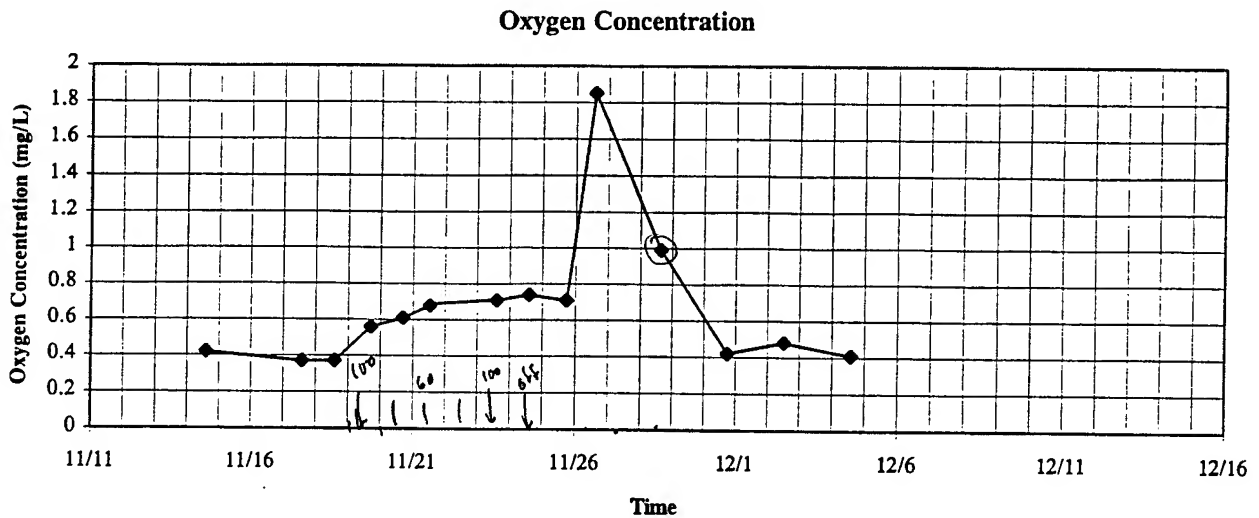
Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2F**

*13' distance  
40' depth*



Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

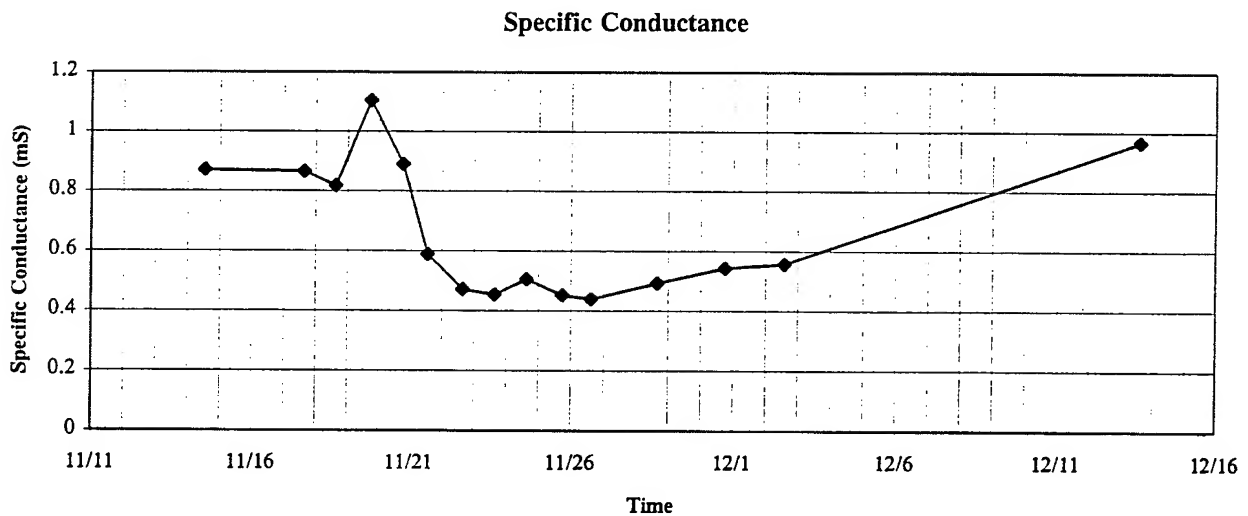
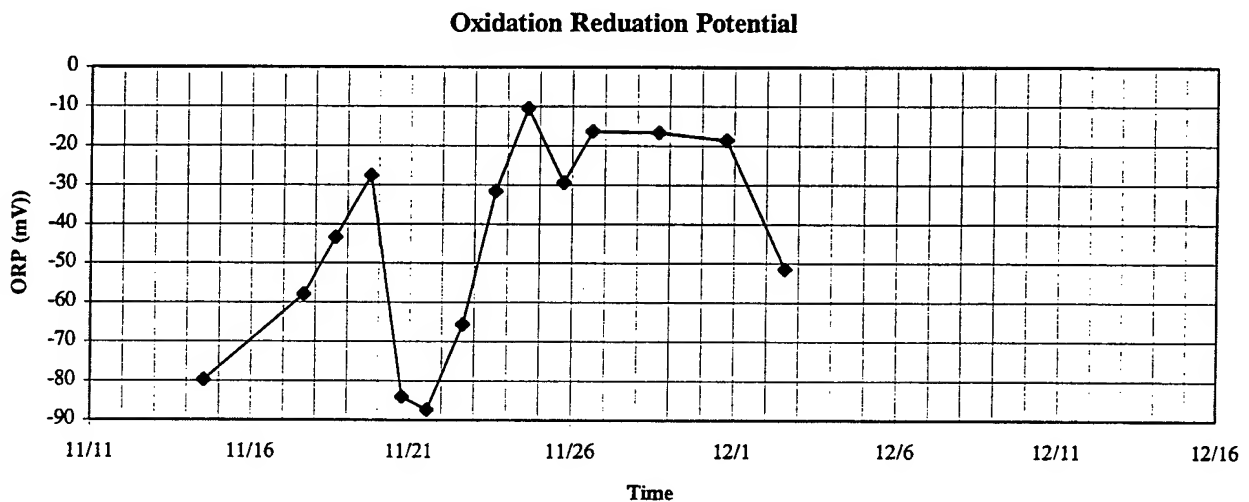
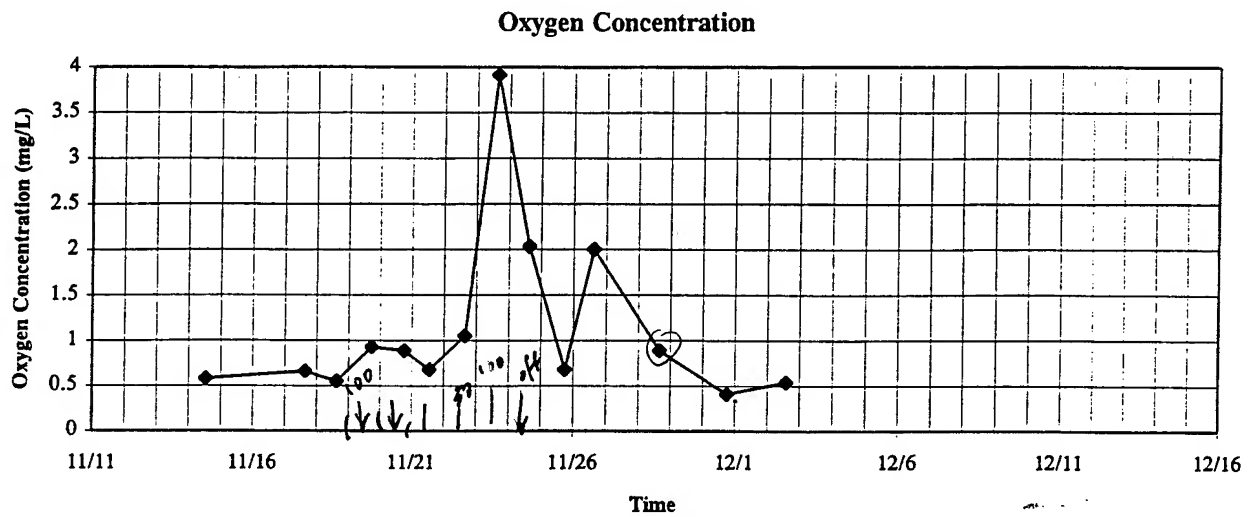
80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06**

*25' depth  
15' dist*

**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3D**



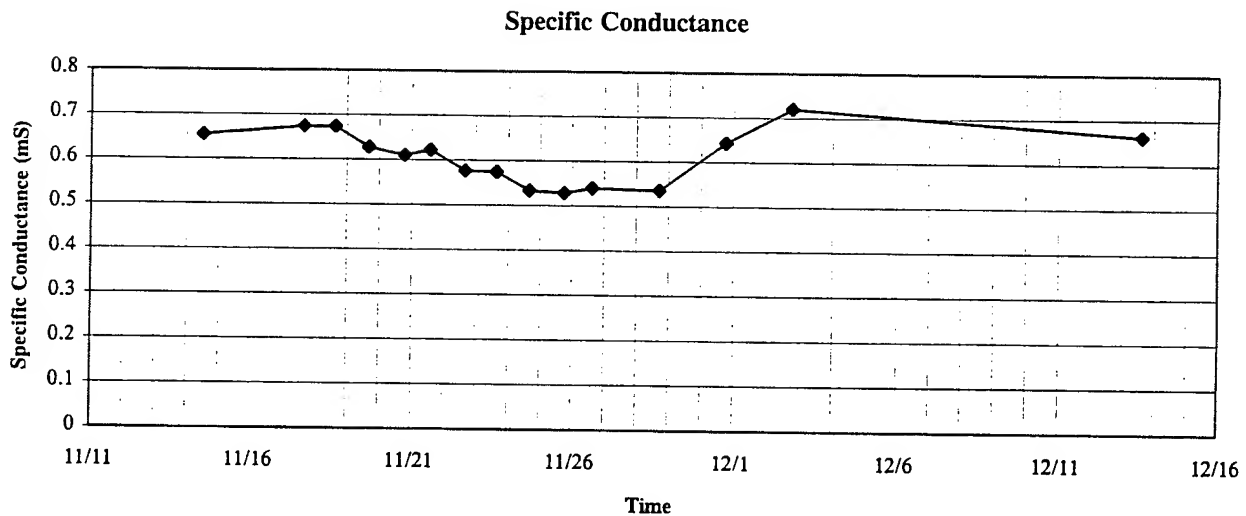
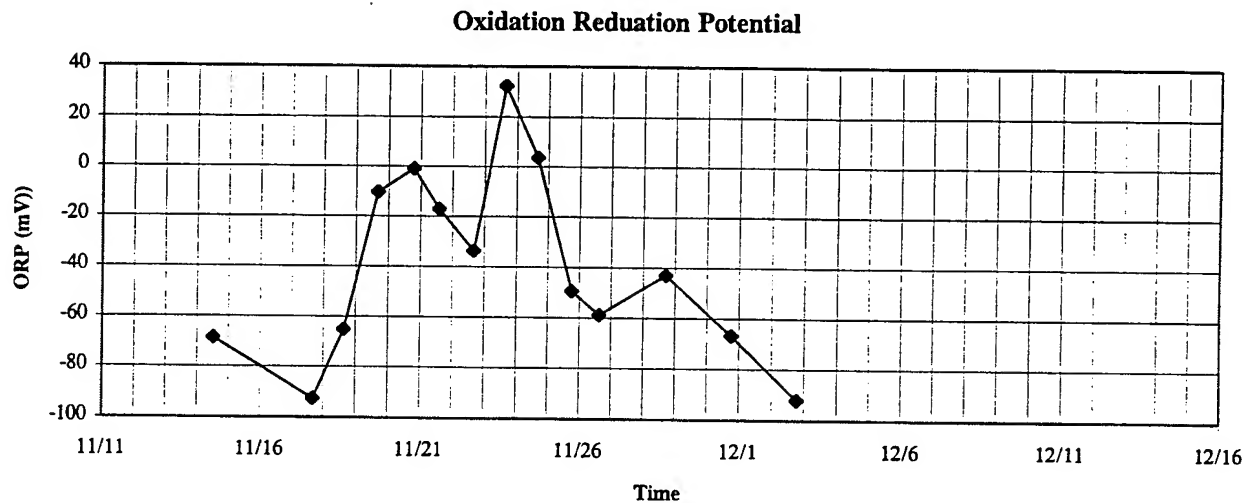
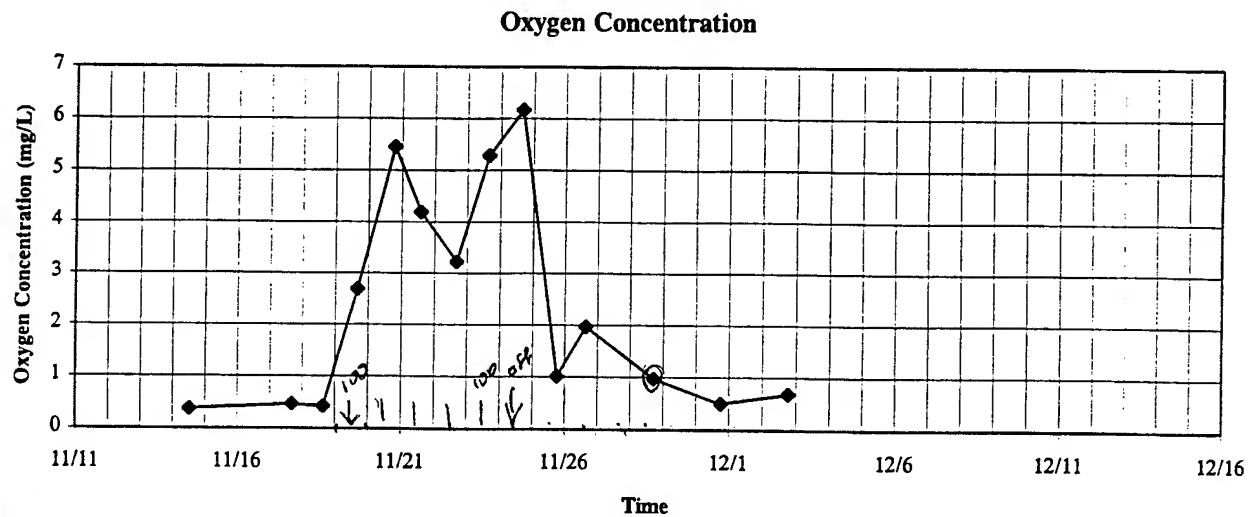
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3E**

33' depth  
15' dist



Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

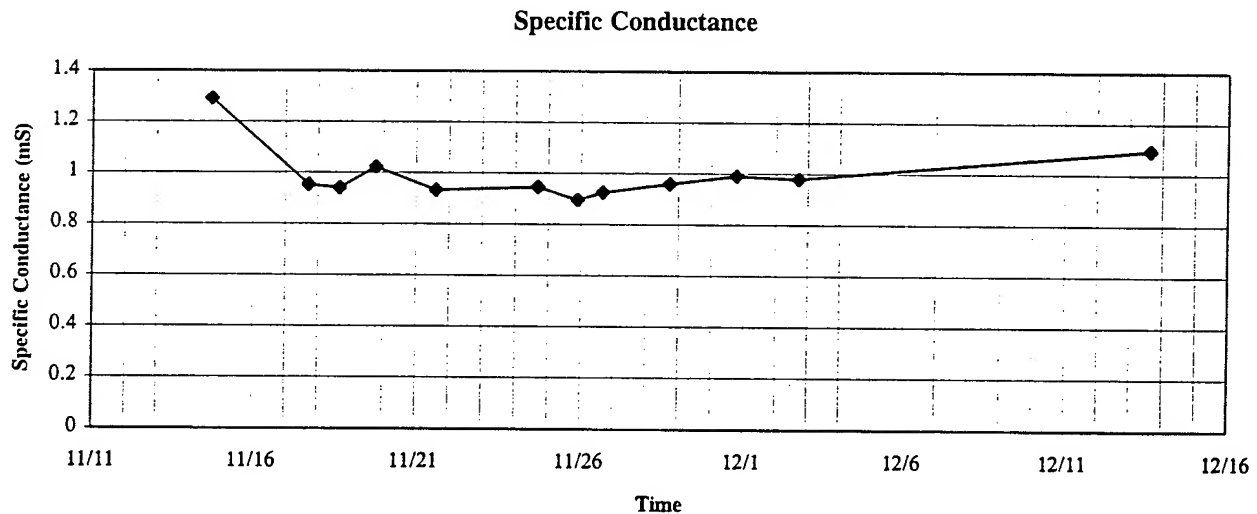
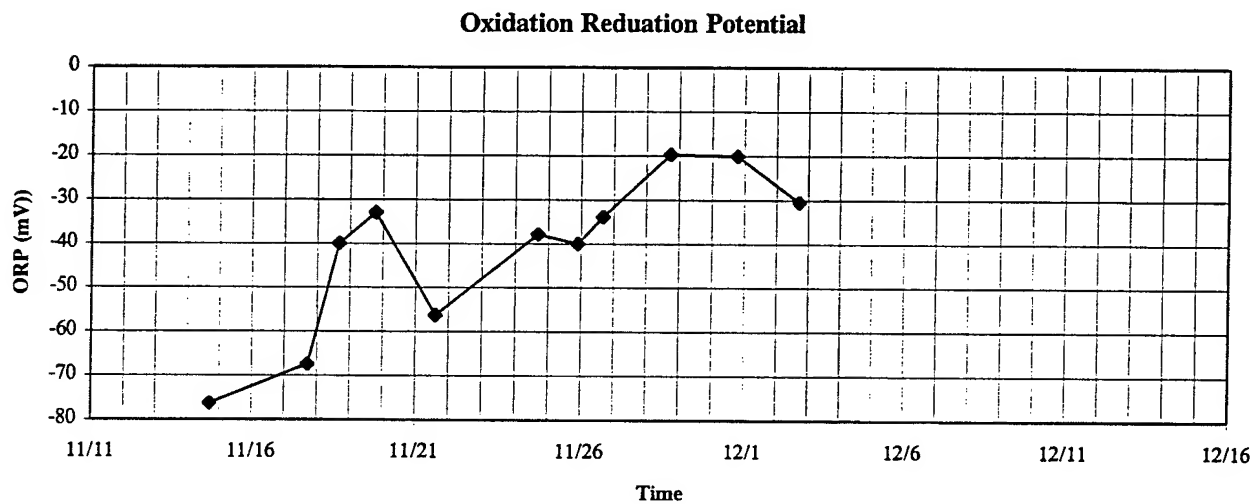
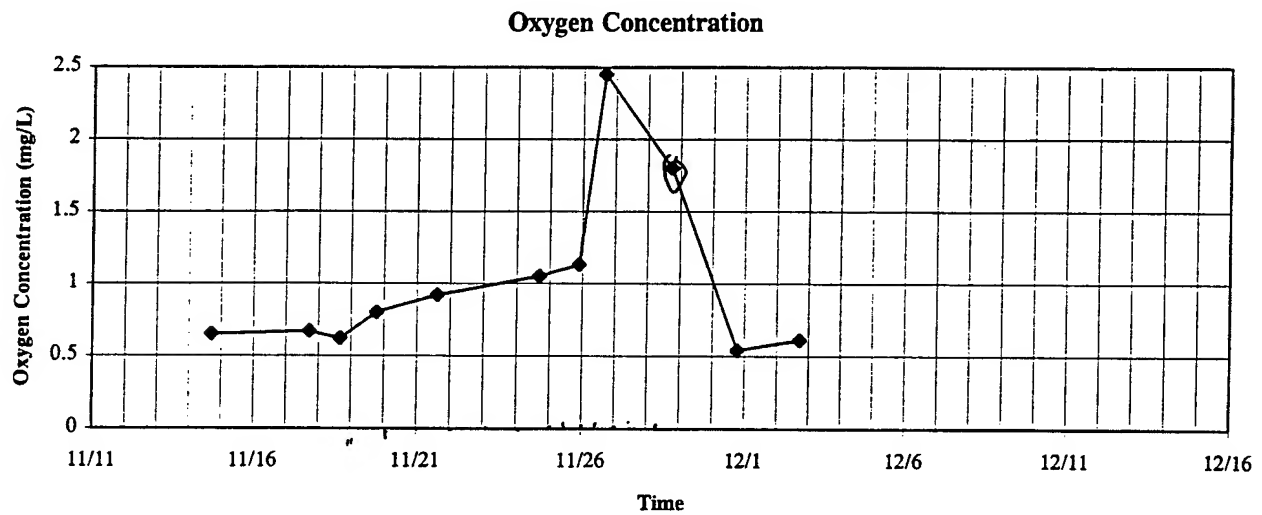
80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

WURTSMITH AFB PILOT TESTING  
SITE SS06

25' depth  
w/ dist.

GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4D



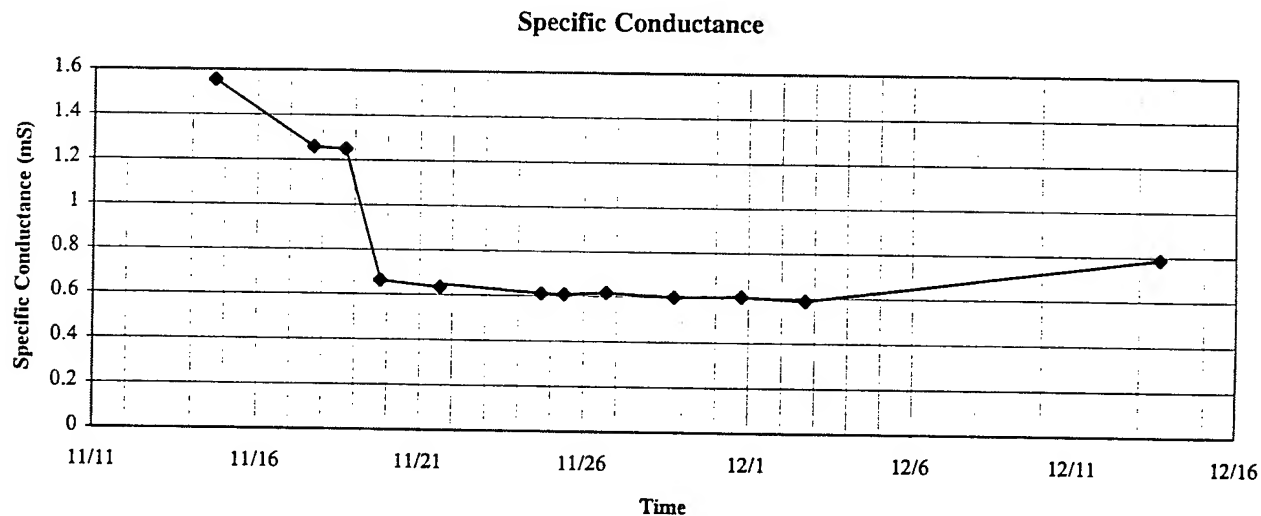
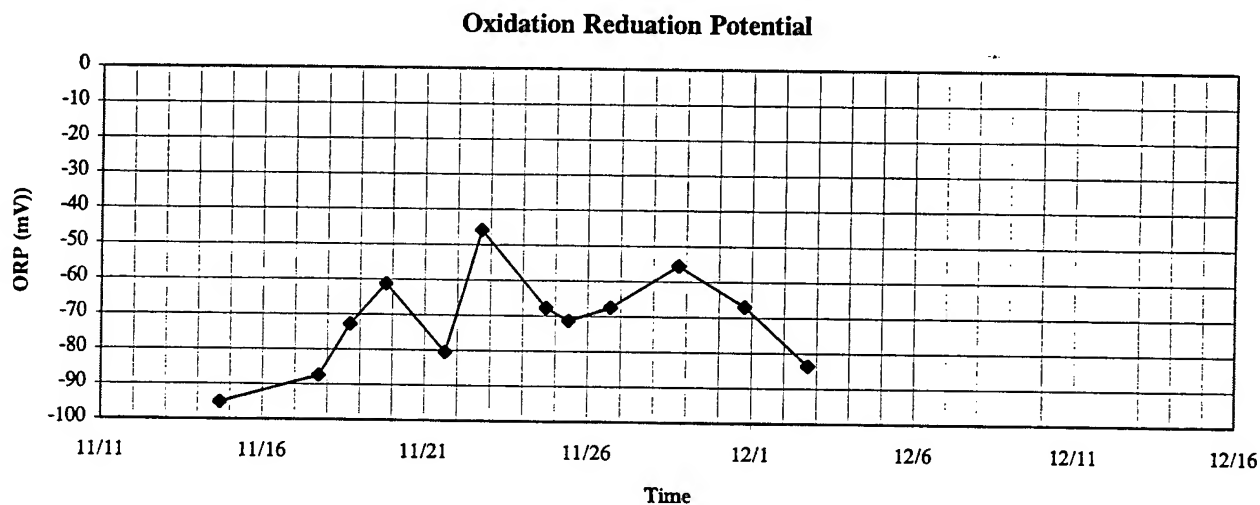
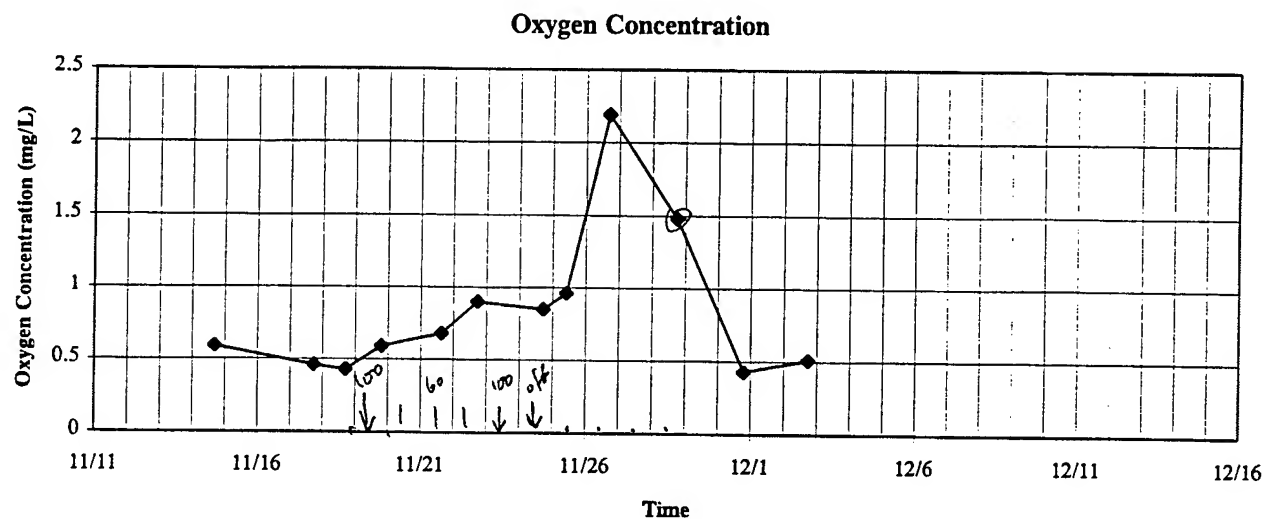
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4E**

*33' depth  
20' dist*



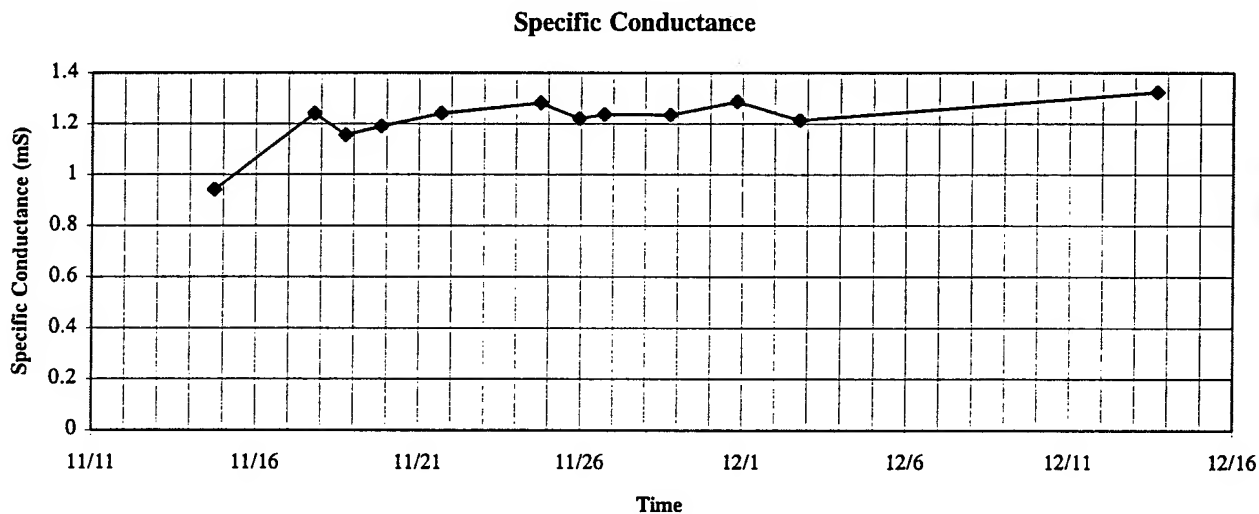
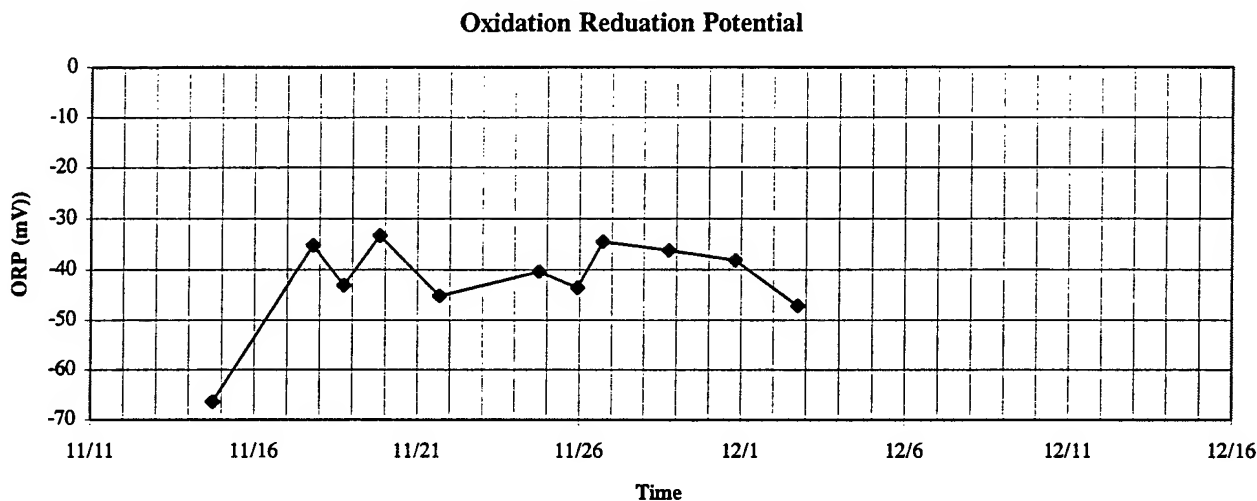
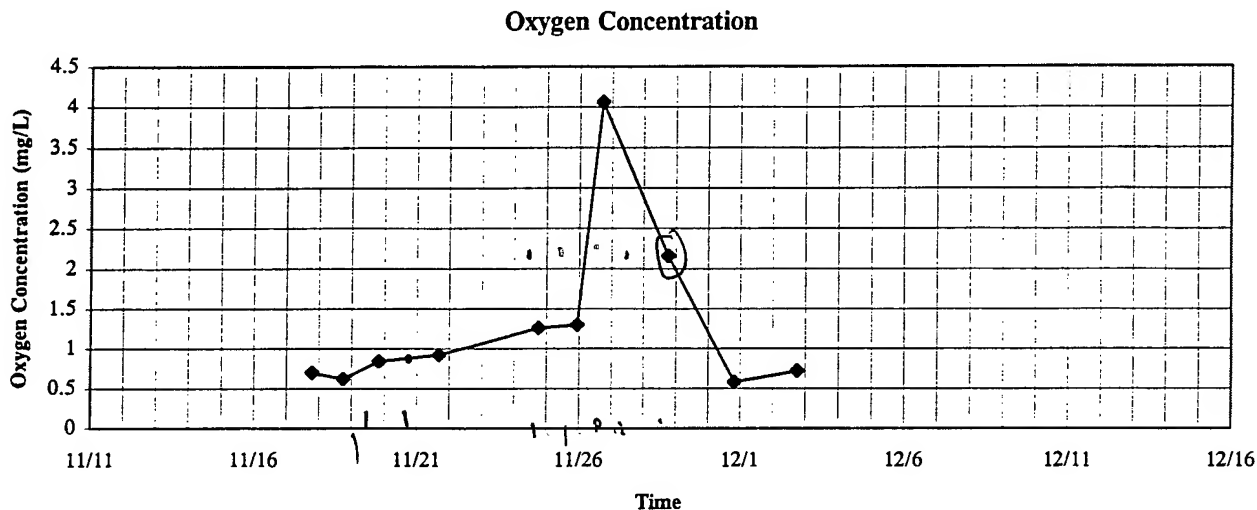
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5D**

40' dist  
25' depth



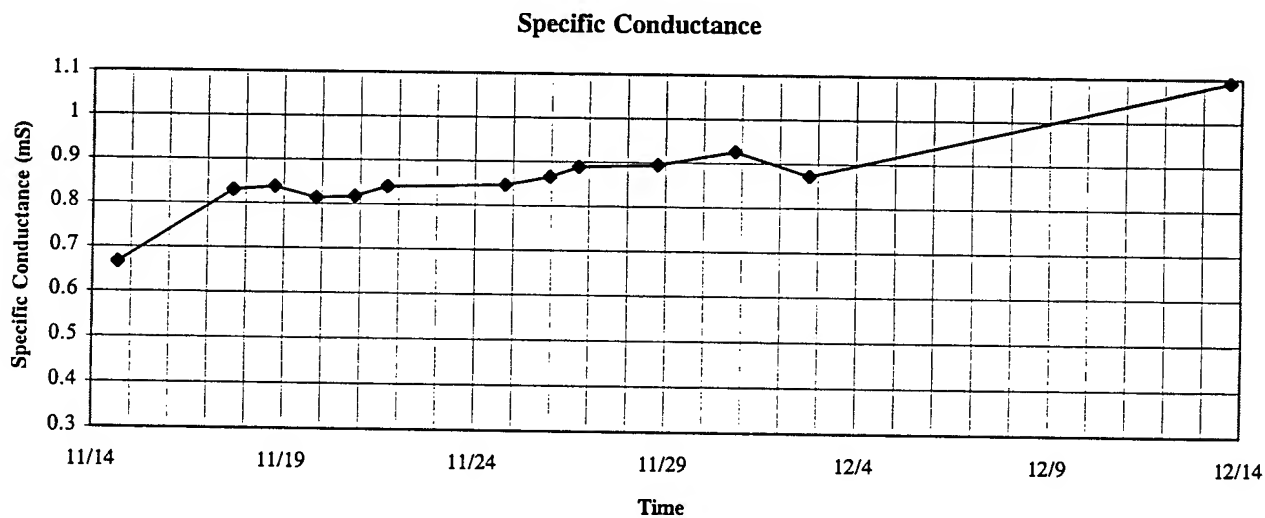
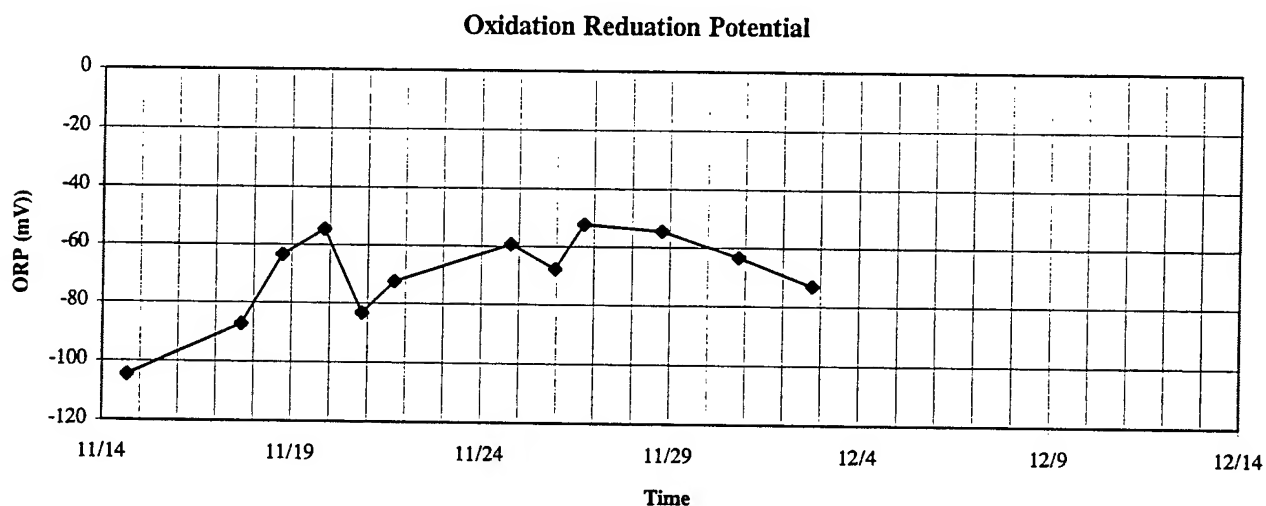
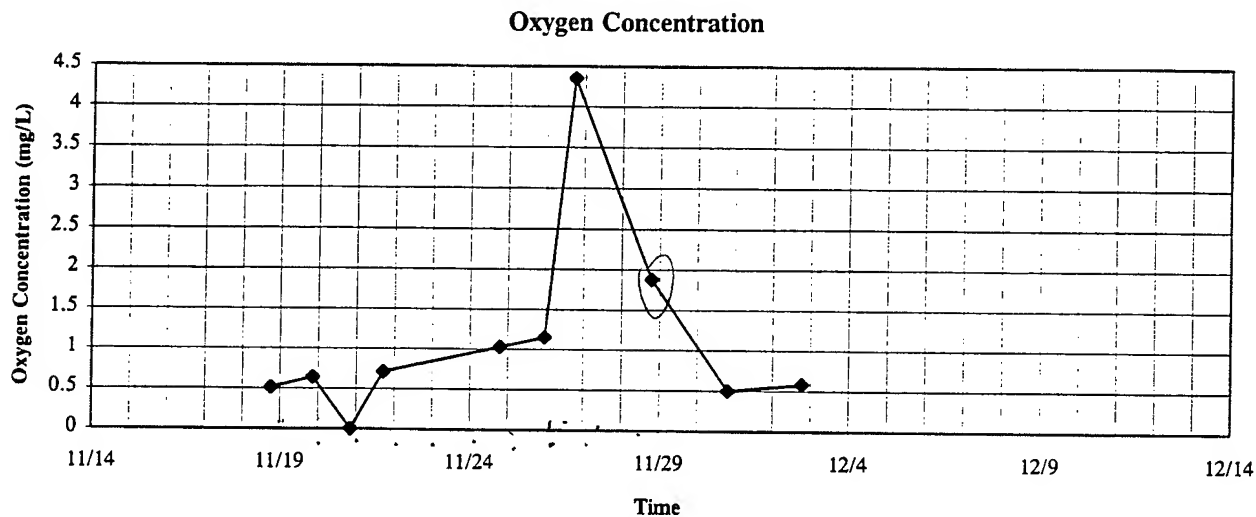
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5E**

40' dist  
33' depth



Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30





PROJECT NUMBER  
134853

BORING NUMBER  
28-SB07 Page 1

## SOIL BORING LOG

PROJECT: Travis AFB WABOU Ri

ROUND 2

LOCATION: Building 755

ELEVATION: 72.7

DRILLING CONTRACTOR: WTRD

DRILLING METHOD AND EQUIPMENT USED: Drill Rig

WATER LEVELS:

START: 3/8/96

END:

LOGGER: KROOK

DEPTH BELOW SURFACE (FT)

CORE DESCRIPTION

COMMENTS

INTERVAL (FT)

RECOVERY ft.

#/TYPE

Sample  
Field ID  
Number

SOIL NAME, USCS GROUP SYMBOL, COLOR,  
MOISTURE CONTENT, RELATIVE DENSITY,  
OR CONSISTENCY, SOIL STRUCTURE,  
MINERALOGY.

DEPTH OF CASING, DRILLING RATE,  
DRILLING FLUID LOSS,  
TESTS, AND INSTRUMENTATION.

0

0.5

1

1.5

2

2.5

3

3.5

4

4.5

5

5.5

6

6.5

7

7.5

8

8.5

9

9.5

10

10.5

1.5

4

4.5

Clay (CL), silt and fine sand, saturated, stiff

Silty Clay (CL), with fine sand, moist, friable, firm to stiff

Silty Clay (CL), with fine sand, moist, friable, firm to stiff, with decreasing fine sand with depth

Silty Sand (SM), fine, moderately dense, moist,

Sandy Silt (ML), fine sand, moderately plastic, firm, moist,

Easy Drilling

OVM = 15.0 ppm. (bag)

TO: Jim Campbell  
9 pgs.



PROJECT NUMBER  
134853

BORING NUMBER  
28-SB07 Page 2

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 72.7

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/8/96

END :

LOGGER : KROOK

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION	COMMENTS
	INTERVAL (FT)		RECOVERY ft.			
		#/TYPE				
11						
11.5						
12						
12.5						OVM = 101.0 ppm. (bag)
13						
13.5					Silty Sand (SM), fine, moderately dense, moist,	
14						
14.5						
15						
15.5			3			
16						
16.5					Sandy Silt (ML), friable, firm, fine sand, moist	
17						
17.5						
18						OVM = 84.0 ppm. (bag)
18.5						
19					Silt (ML), with fine sand, moderately friable, moist, moderately plastic	
19.5						
20						
20.5					Silty Sand (SM), fine to medium, moderately dense, moist	
21			5			
21.5						





PROJECT NUMBER  
134853

BORING NUMBER  
28-SB07 Page 4

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 72.7

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/8/96

END :

LOGGER : KROOK

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	INTERVAL (FT)	RECOVERY ft.				
			#/TYPE			
33				B755-1408		OVM = 47 ppm
33.5						
34					Silty Sand and Gravel (SM-GM), well graded, moderately dense, sub-angular, saturated, grading to	OVM = 1.8 ppm. (bag)
34.5						Potential hydropunch location
35						
35.5						
36		5			Silty Clay (CL), moderately plastic, with fine sand,	
36.5						Core barrel wet
37						
37.5						
38						OVM = 1.0 ppm. (bag)
38.5					Siltstone (in tip), hard, dense	Core barrel sticking in augers while tripping out
39						
39.5					Sandy Clay (CL), stiff, plastic, fine to medium sand	
40						
40.5						Hole caved to 26'. Should tag bottom at 43.5'
41		4				Lost 17' of hole to caving and or heaving sands
41.5					Sandy Clay (CL), stiff, plastic, fine to medium sand, grading increasing sand	
42						
42.5					Silty Sand (SM), moderately dense, fine to medium	
43				Clay (CL), very stiff, with some fine sand	6" sand seam	
43.5					Bottom tagged at 43.5'	



PROJECT NUMBER  
134853

BORING NUMBER  
28-SB07 Page 5

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 72.7

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/8/96

END :

LOGGER : KROOK

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION	COMMENTS
INTERVAL (FT)	RECOVERY ft.				SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	#/TYPE					
44						Reamed out bore hole
44.5						
45					Silty Clay (CL), stiff, friable, moist, with little fine sand	
45.5						
46	4.5					
46.5						
47						
47.5						
48					Bedrock, sandstone, competent	
48.5						
49						Refusal - rig picking up off jacks. Bottom of hole at 48.7'
49.5						
50						
50.5						
51						
51.5						
52						
52.5						
53						
53.5						
54						
54.5						



PROJECT NUMBER  
134853

BORING NUMBER  
28-MW01 Page 1

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 74.31

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/21/96

END :

LOGGER : TRUMAN

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION	COMMENTS
INTERVAL (FT)	RECOVERY ft.				SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			#/TYPE			
0					Silty Sand (SM), moist, loose, very fine sand.	
0.5						
1						Soil cuttings OVM = 0.0 ppm
1.5					Sandy Clay (CL), moist, soft, fine sand, medium plasticity.	
2						
2.5						
3	3				Clayey, gravelly, sand (GC-SC), moist, medium dense, medium sand, fine gravel.	
3.5						
4						
4.5						
5	4.8				Sand (SP), dry, loose, medium to fine sand	
5.5						
6						
6.5					Clayey Silt (ML), dry, medium stiff, friable	
7						
7.5						
8						
8.5						
9						
9.5						
10	2					Soil cuttings OVM = 0.0 ppm
10.5						



PROJECT NUMBER

134853

BORING NUMBER

28-MW01 Page 2

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 74.31

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/21/96

END :

LOGGER : TRUMAN

DEPTH BELOW SURFACE (FT)

CORE DESCRIPTION

COMMENTS

INTERVAL (FT)

RECOVERY ft.

#/TYPE

Sample  
Field ID  
NumberSOIL NAME, USCS GROUP SYMBOL, COLOR,  
MOISTURE CONTENT, RELATIVE DENSITY,  
OR CONSISTENCY, SOIL STRUCTURE,  
MINERALOGY.DEPTH OF CASING, DRILLING RATE,  
DRILLING FLUID LOSS,  
TESTS, AND INSTRUMENTATION.

11

11.5

12

12.5

13

13.5

14

14.5

15

15.5

16

16.5

17

17.5

18

18.5

19

19.5

20

20.5

21

21.5

Sandy Clay (CL), moist, very stiff, thinly bedded,  
medium to low plasticity.

Soil cuttings OVM = 0.0 ppm

Soil cuttings OVM = 0.0 ppm

Gravelly, Silty, Sand (SP-SM), moist, dense, medium  
to fine sand, fine gravel.



PROJECT NUMBER  
134853

BORING NUMBER  
28-MW01 Page 3

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 74.31

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/21/96

END :

LOGGER : TRUMAN

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION	COMMENTS
INTERVAL (FT)	RECOVERY ft.		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
		#/TYPE				
22			B755-3711	Gravelly, Silty, Sand (SP-SM), moist, dense, medium to fine sand, fine gravel, occasional sandy silt (ML) lenses.		
22.5						
23						
23.5						
24						
24.5						
25						
25.5						
26						
26.5						
27			B755-1300		Water encountered at 25.3' bgs. (water rose to 21.2)	
27.5						
28						
28.5						
29						
29.5						
30	4.5					
30.5						
31						
31.5						
32						
32.5						





PROJECT NUMBER  
134853

BORING NUMBER  
28-MW01 Page 4

## SOIL BORING LOG

PROJECT : Travis AFB WABOU RI

ROUND 2

LOCATION : Building 755

ELEVATION : 74.31

DRILLING CONTRACTOR : WTRD

DRILLING METHOD AND EQUIPMENT USED : Drill Rig

WATER LEVELS :

START : 3/21/96

END :

LOGGER : TRUMAN

DEPTH BELOW SURFACE (FT)				Sample Field ID Number	CORE DESCRIPTION	COMMENTS
	INTERVAL (FT)				SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	RECOVERY ft.	#/TYPE				
33				Total Depth = 34.0'		
33.5						
34						
34.5						
35						
35.5						
36						
36.5						
37						
37.5						
38						
38.5						
39						
39.5						
40						
40.5						
41						
41.5						
42						
42.5						
43						
43.5						

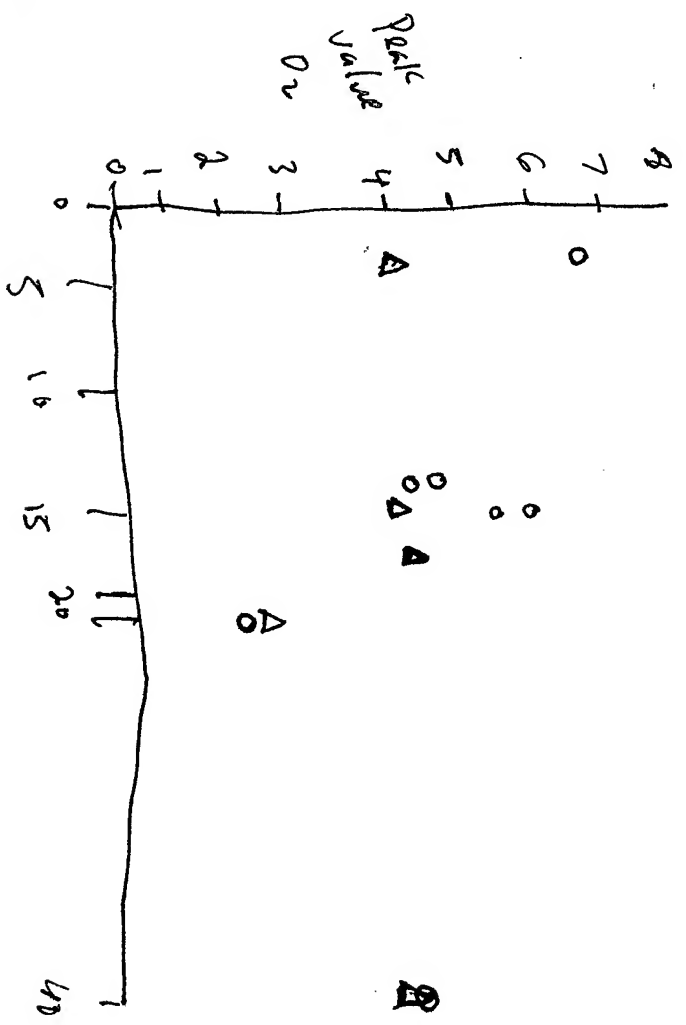
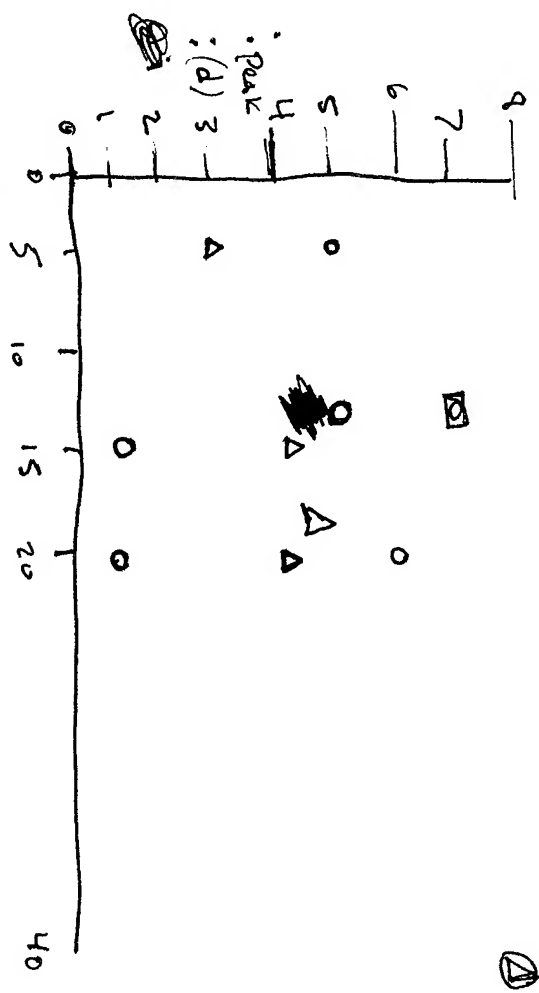
816 983 3680

## TRANSACTION REPORT

Transmission

Transaction(s) completed

NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
232	MAR. 27 15:45		816 426 5462	0' 03' 00"	009	OK N ECM



Draft Remedial Action Plan/Decision Document  
Sites SS-06, ST-40, SS-13, and ST-46  
November 12, 1996

In the remedial design, the area of treatment necessary and the number of SVE and air sparge wells would be based on pilot-scale testing, the current remedial investigation results, and additional subsurface sampling as needed to verify the area of contamination. Pilot-scale testing and additional sampling may show that the remedial design only needs to include sparge wells in a few areas of peak contamination thus reducing the number of sparge wells. Laboratory and pilot-scale treatability studies would need to be conducted to better assess the effectiveness and verify the feasibility of using these technologies for contaminate removal by volatilization and biodegradation. During the laboratory biofeasibility studies, representative soil samples collected from areas containing residual-phase LNAPL should be evaluated to confirm the presence of hydrocarbon-degrading microbial populations in the soil, establish baseline levels at the site, and estimate contaminant degradation rates. Inorganic ion concentrations of ammonium, nitrogen, and phosphates, and soil pH levels would need to be evaluated to optimize and assess the need for nutrient mixtures and application rates. The pilot study would be conducted to determine the radial influence of a single air sparge well and a single vapor extraction well, sparge flow rates and pressures, soil vapor extraction flow rates and expected concentrations in the extracted vapor. The air sparge and vapor extraction well(s) installed for the pilot-scale treatability study could also be used during full-scale. The pilot study will determine if vapor-phase treatment is necessary and for how long. The cost estimate assumes that the Benzene Plant thermal off-gas treatment system can also be used to treat the biosparging vapors. This is discussed further in the Draft Final FS Report.

Performance monitoring and maintenance of the system would be performed on a weekly and monthly basis. Field screening of extracted vapors would be performed to assess the need for system adjustment (i.e., adjust vacuum or sparge pressures). Monthly vapor samples would be collected and submitted for laboratory analyses of VOCs, PNAs, and carbon dioxide.

The cost estimate presented in Table 5-2 is based on the cost estimate for Alternative POL-4 presented in Table 5-10 of the FS report. The air sparging/SVE system cost estimate in Table 5-2 is different than that of Table 5-10 of the FS report because of the larger number of SVE wells. For this cost estimate these differences are accounted for by proportionally increasing the cost related to the SVE well system.

MP1

3'

D

Peak (after d)

4.2 (3)

@ 4 d

1.2

after d  
after 100%  
initial  
pump

6.2/6.0

E

6.8 (5)

1.8

.6/.7

F

(Rising)

6.2 (13)

5.2

.6/.8

MP2

13'

19' D 25'

4.3 (4)

1.5

3.2/.8

E 30

4(5) + 4.5(7)

2.5

.6/.5

F 40'

1.8(7)

1

.6/.4

MP3

15'

D 25'

4(4)

.9

.8/.6

E 33'

5.5(1) + 6(5)

1

5.5/.5

MP4

22'

D 25'

2.5 (8)

1.8

.8/.7

E 33'

2.2 (7)

1.5

.7/.5

MP5

40'

D 25'

4.1 (8)

2.2

.9/.6

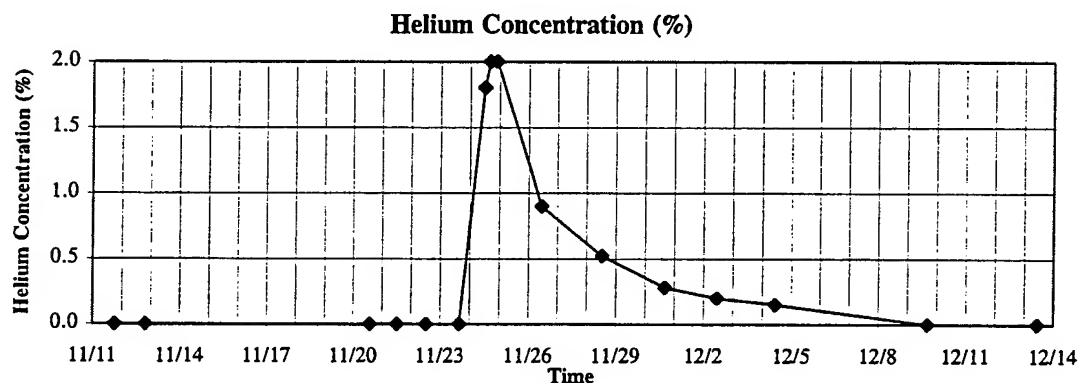
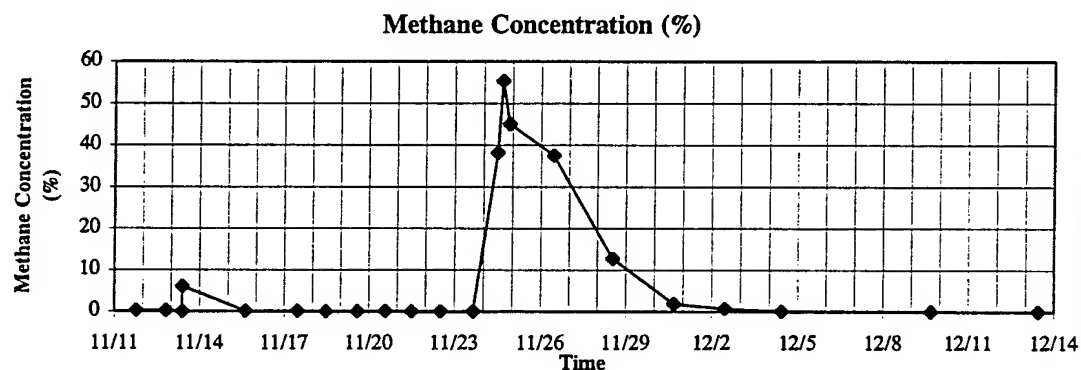
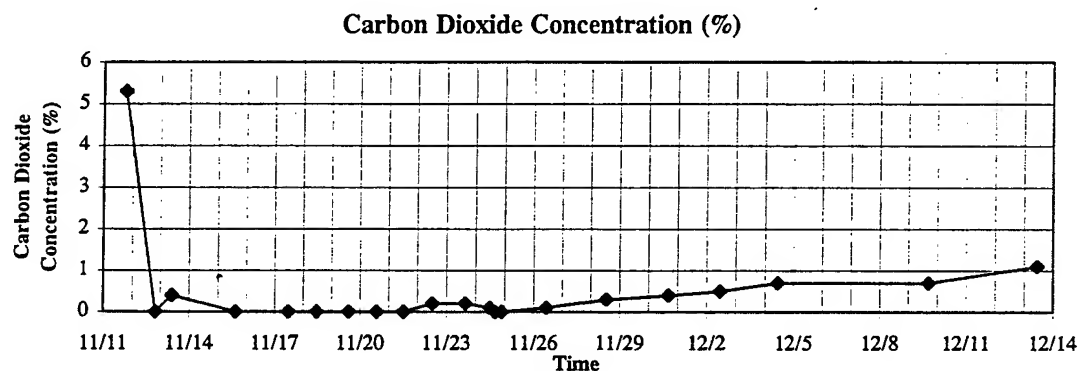
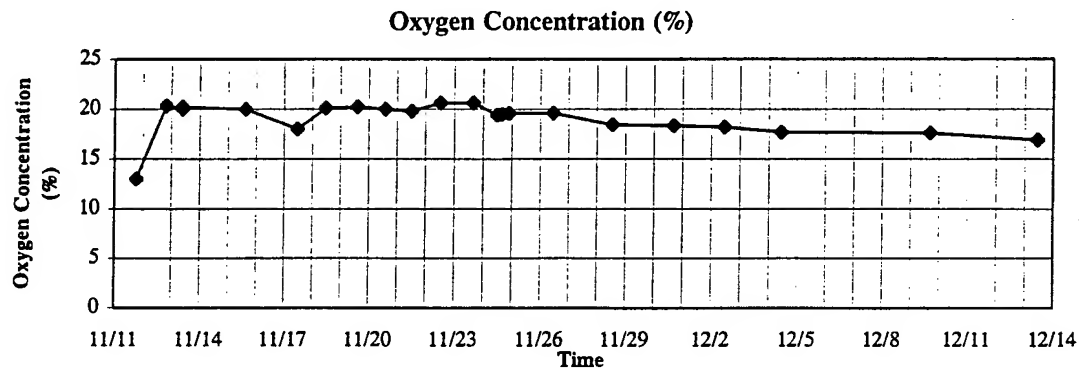
E 33'

4.4 (8)

1.9

0/.5

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR DATA FOR WELL MP1A**

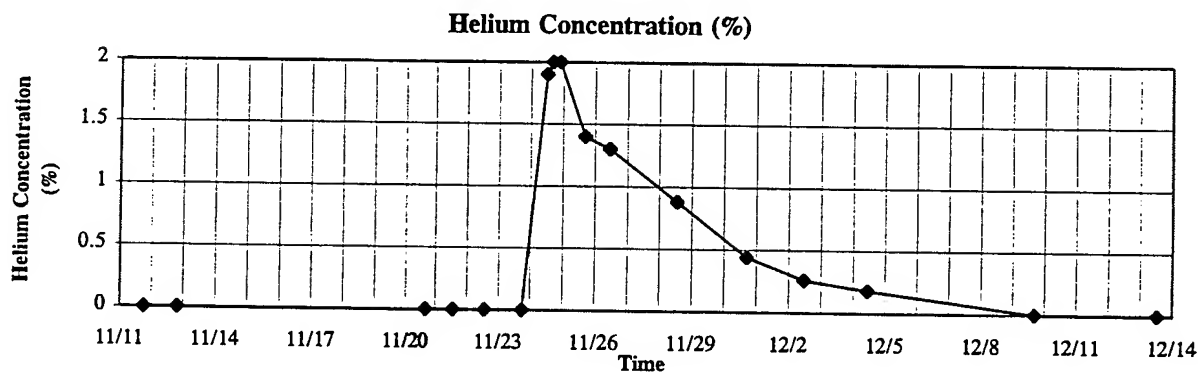
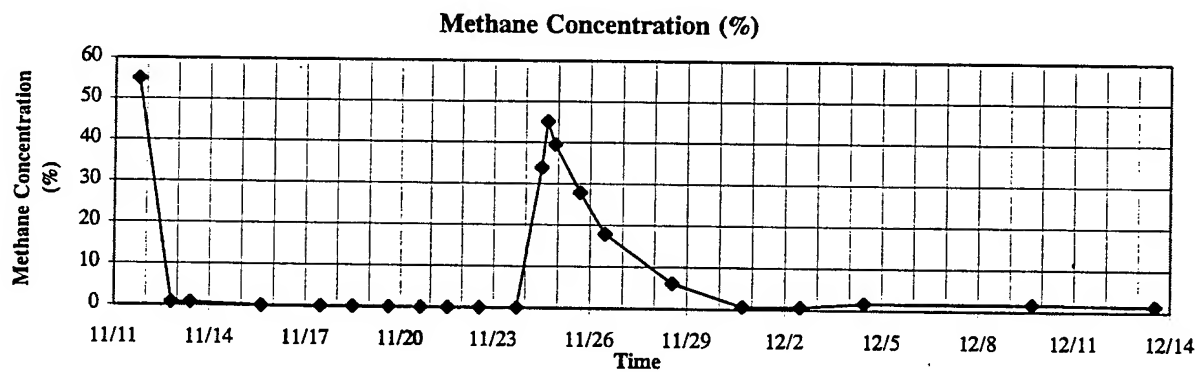
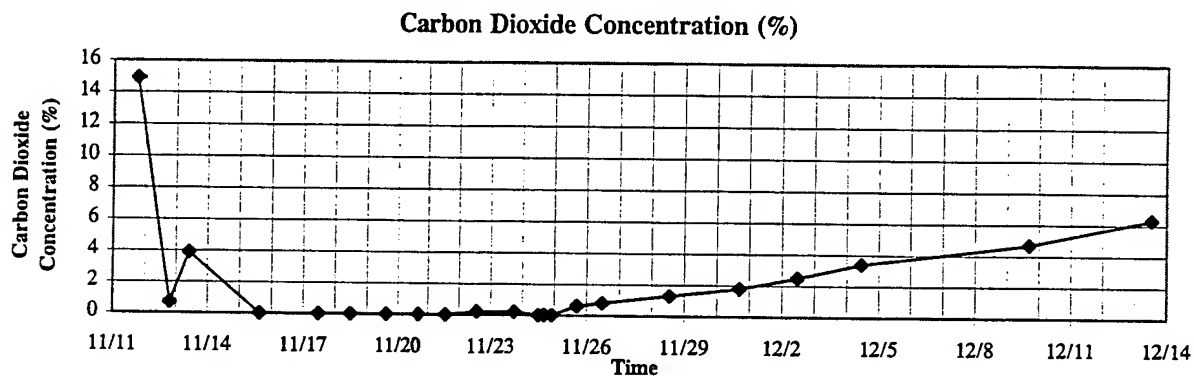
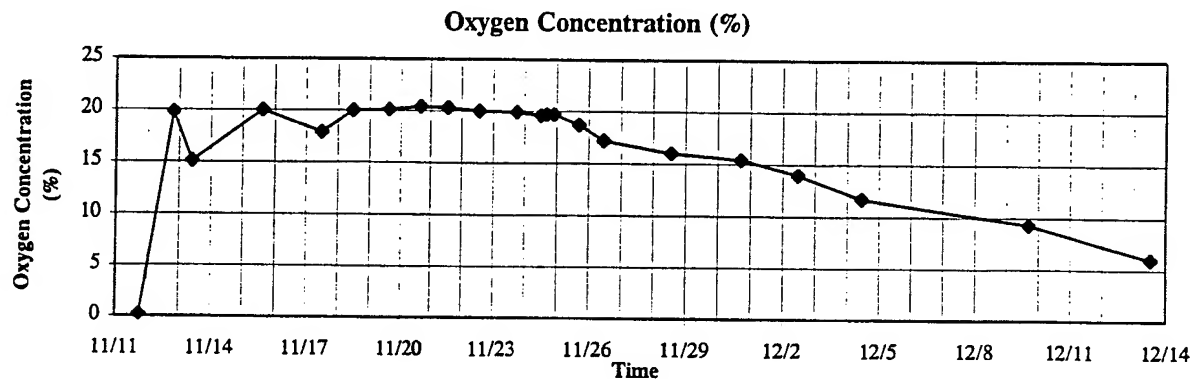


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR DATA FOR WELL MP1B**



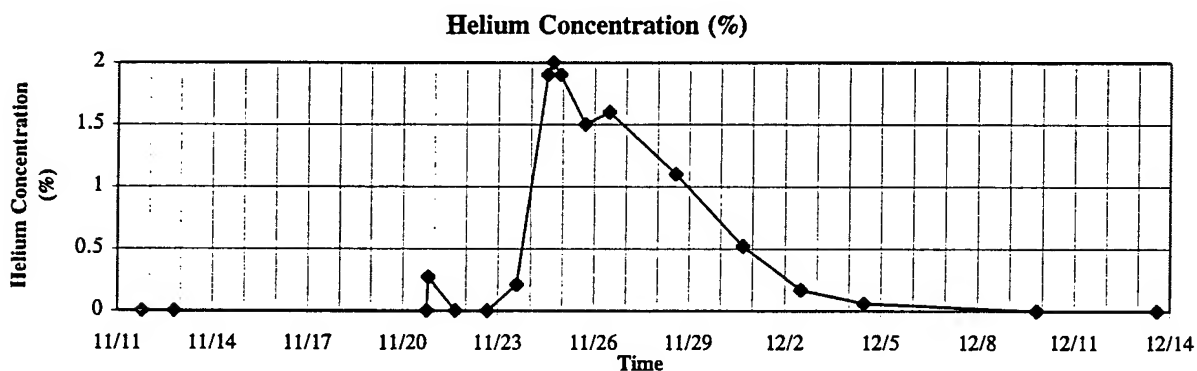
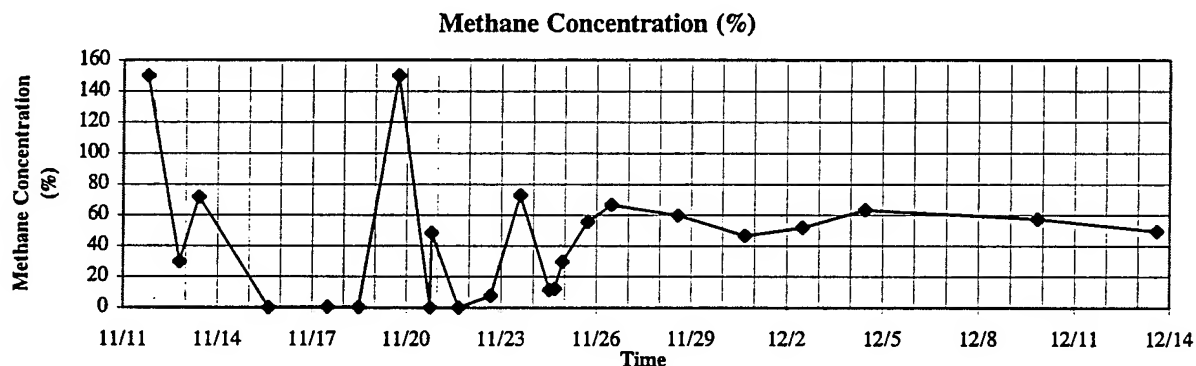
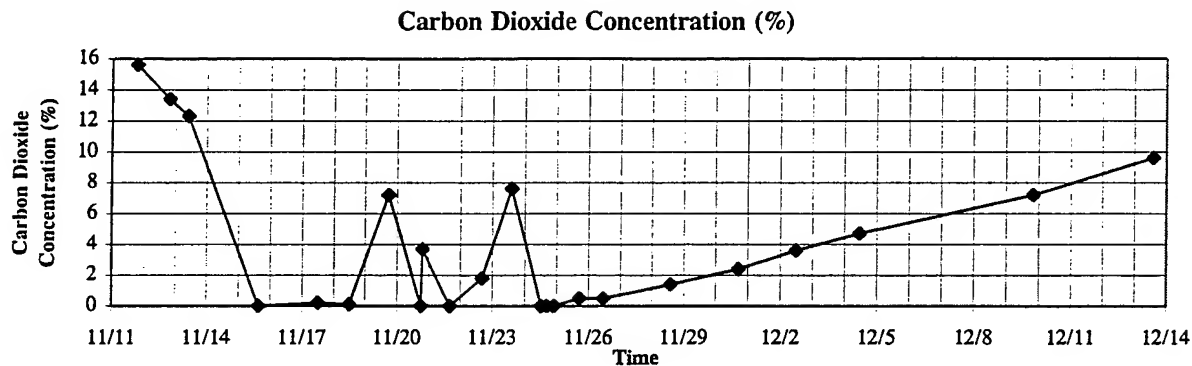
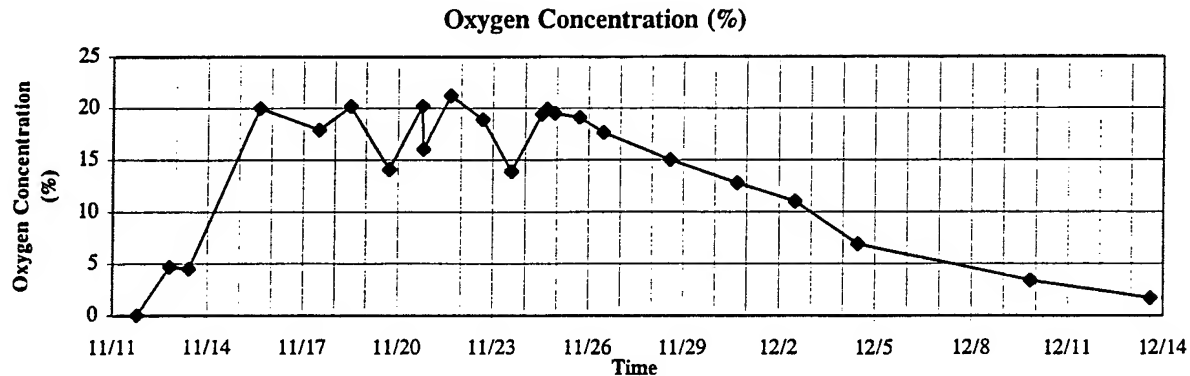
Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30



**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR DATA FOR WELL MP1C**

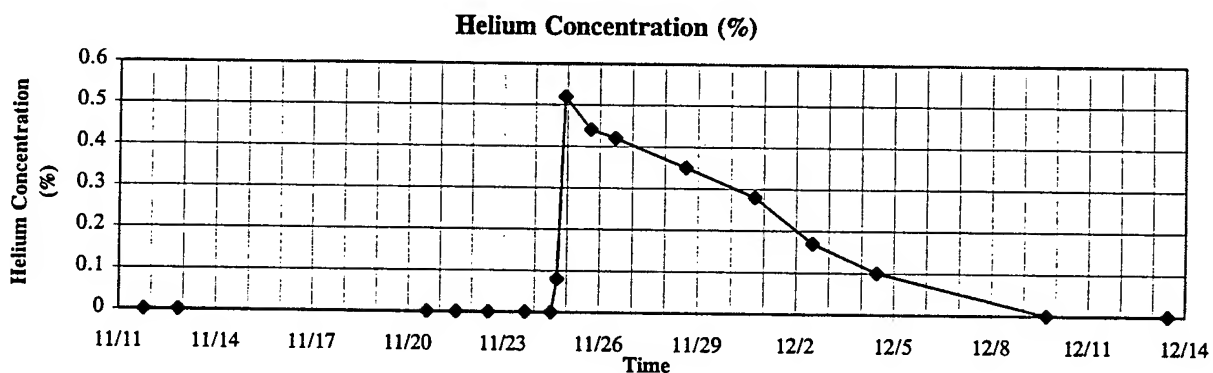
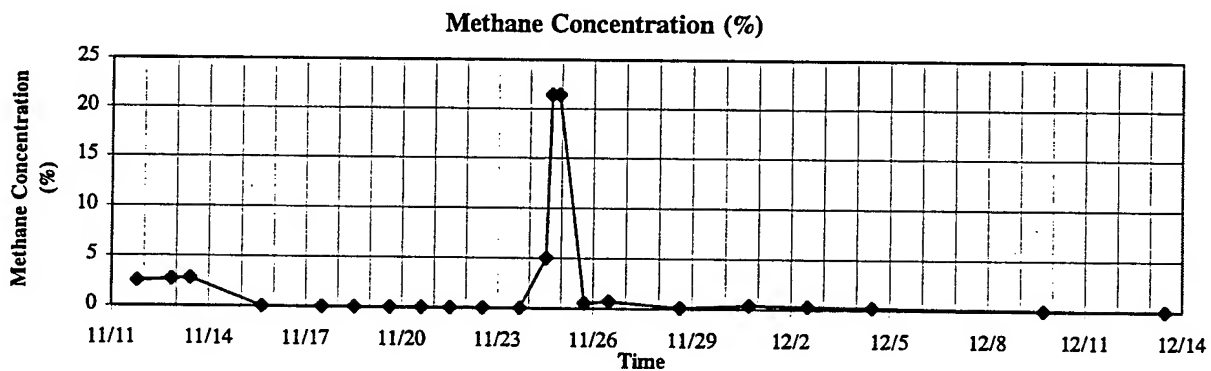
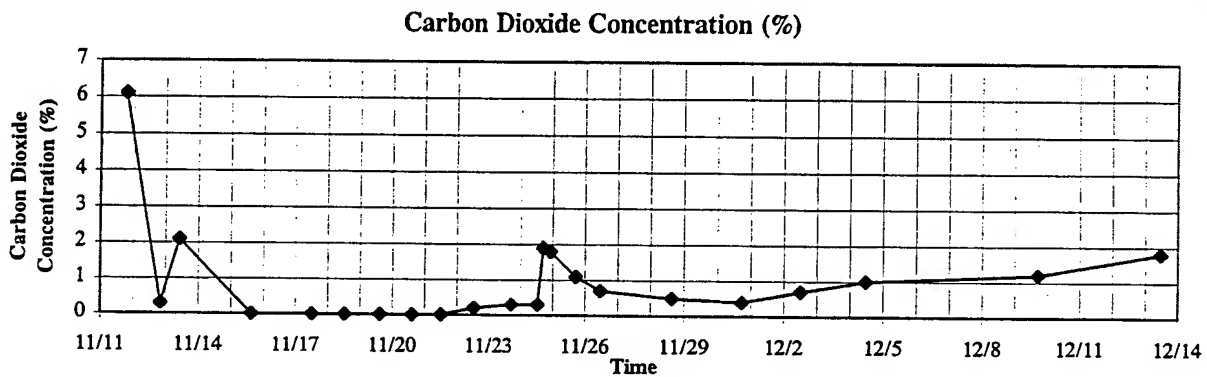
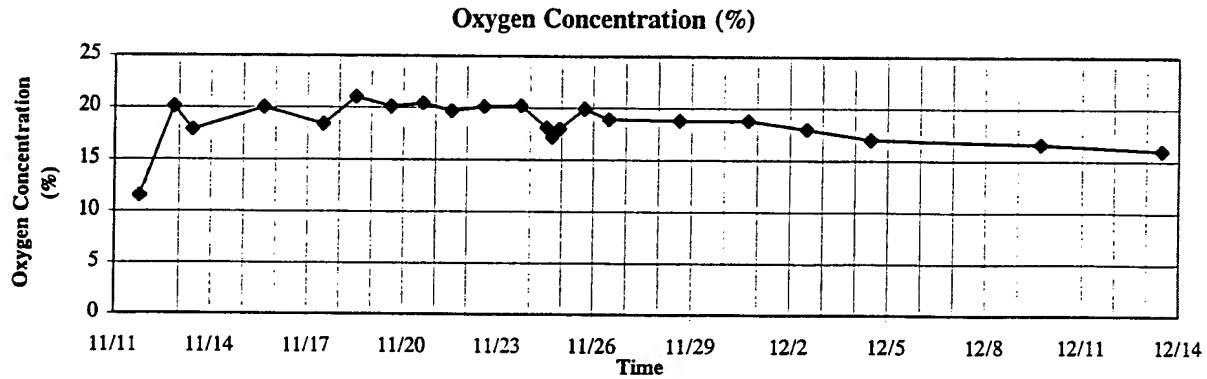


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP2A**

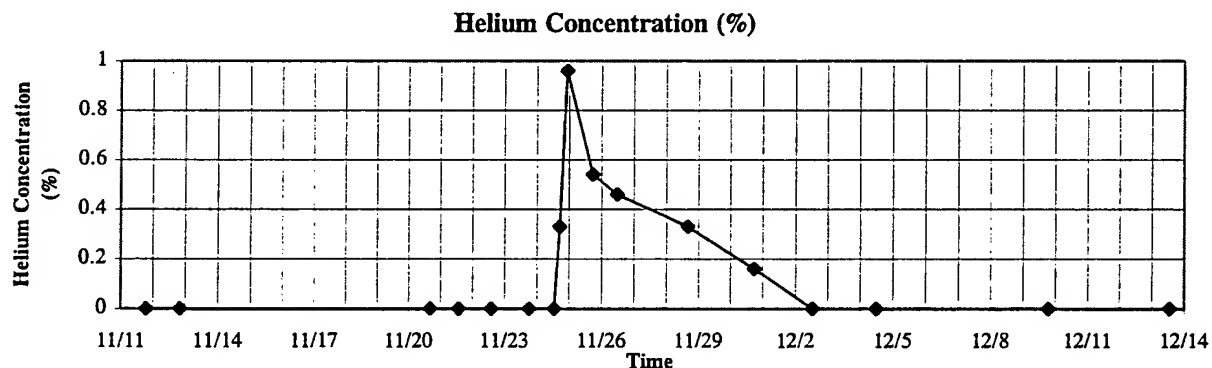
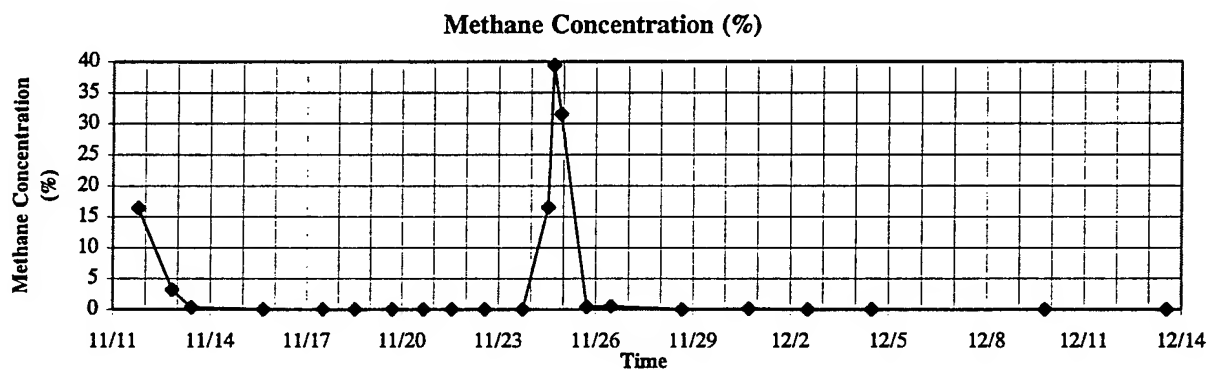
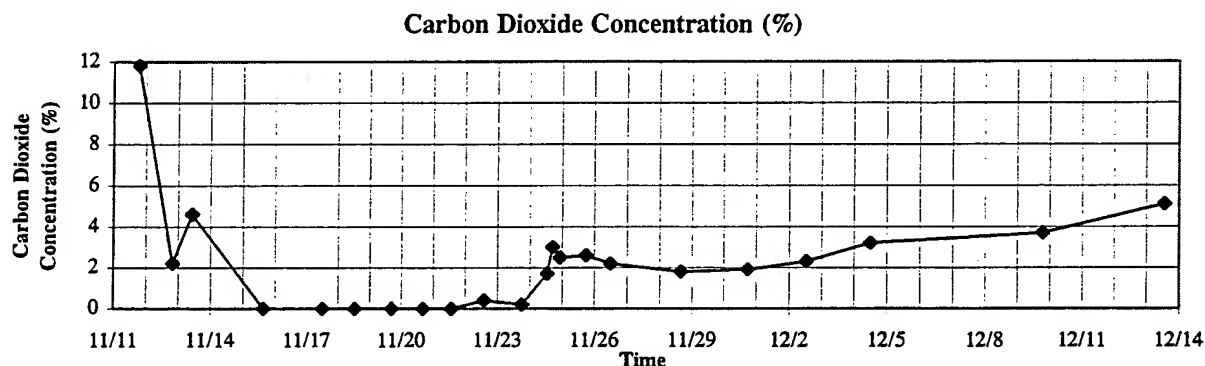
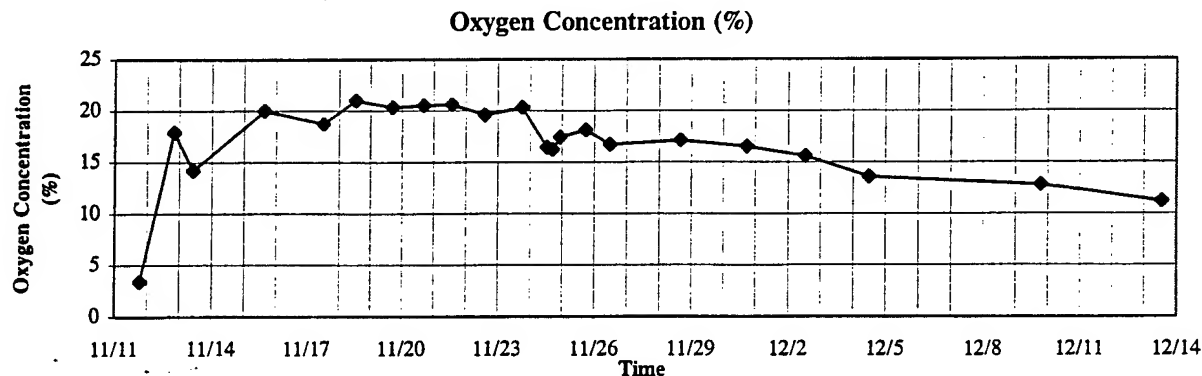


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP2B**

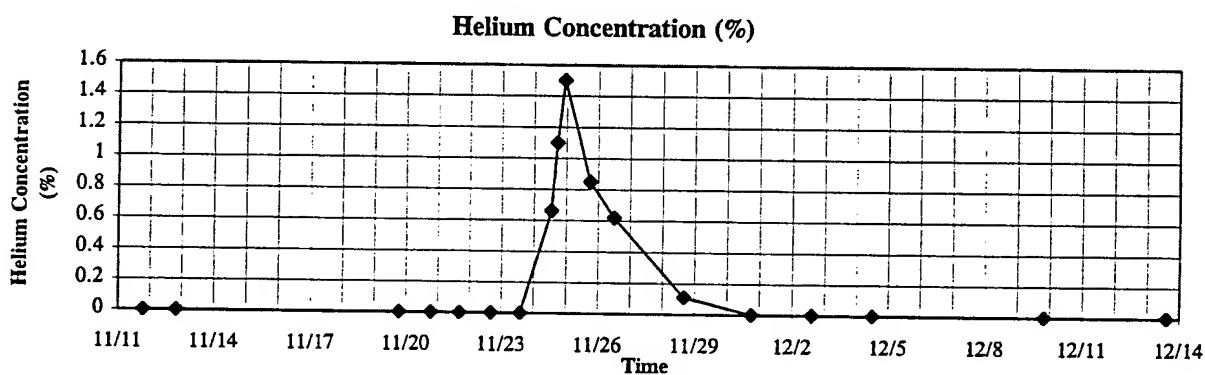
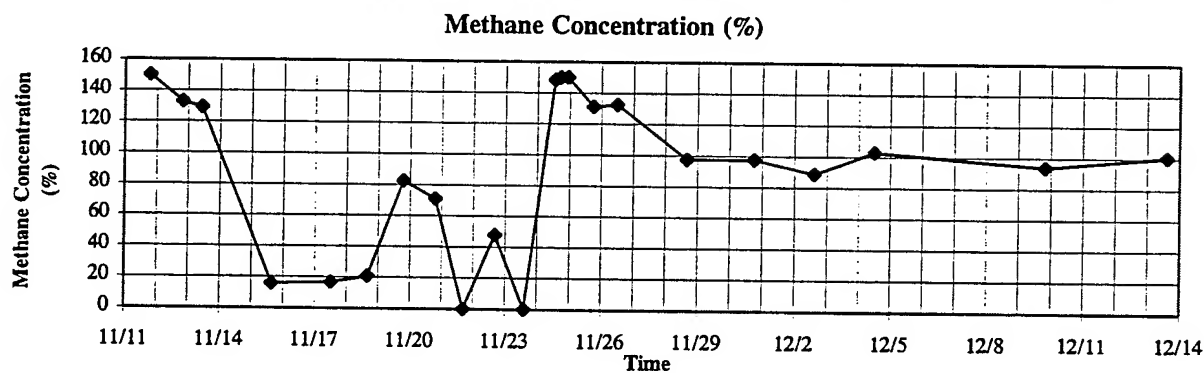
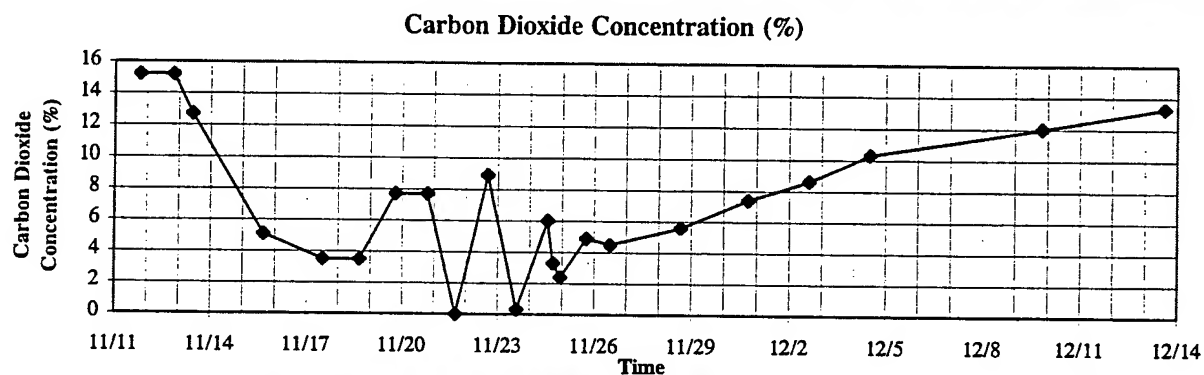
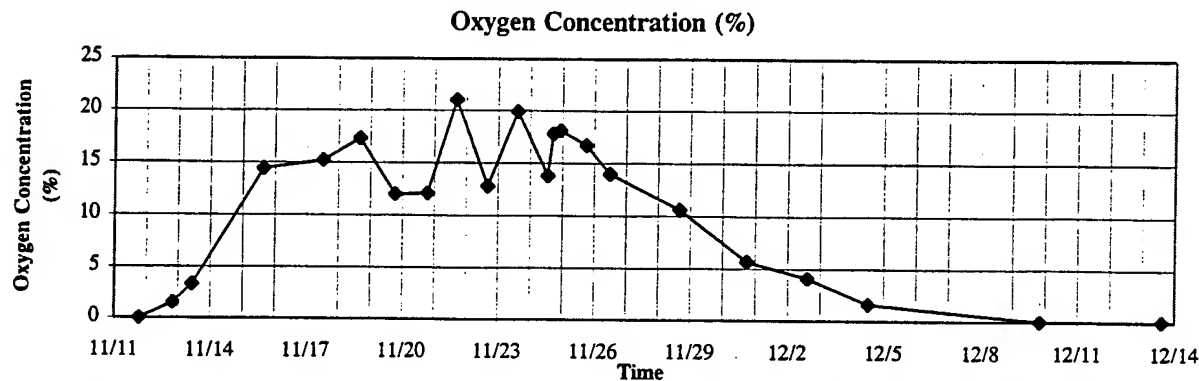


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP2C**

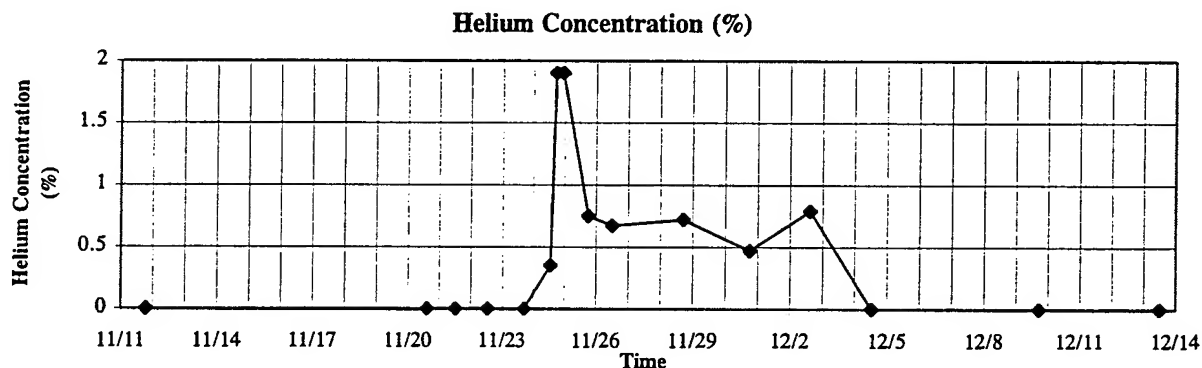
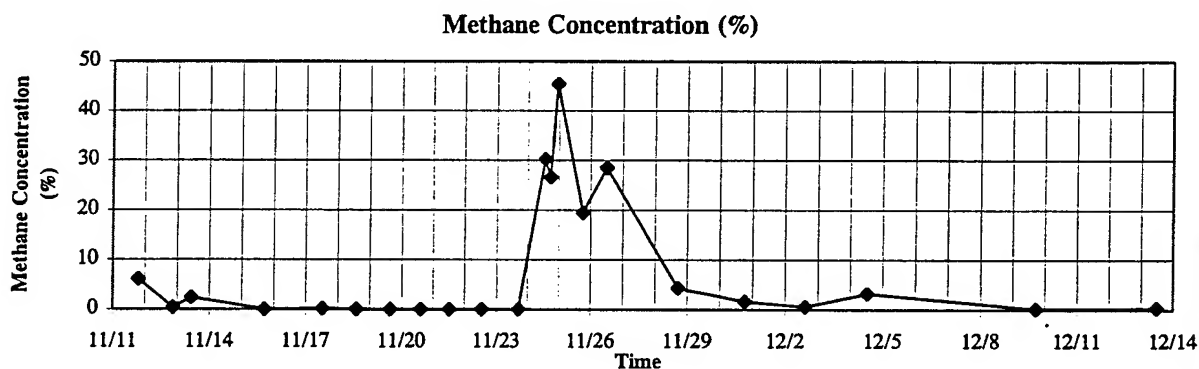
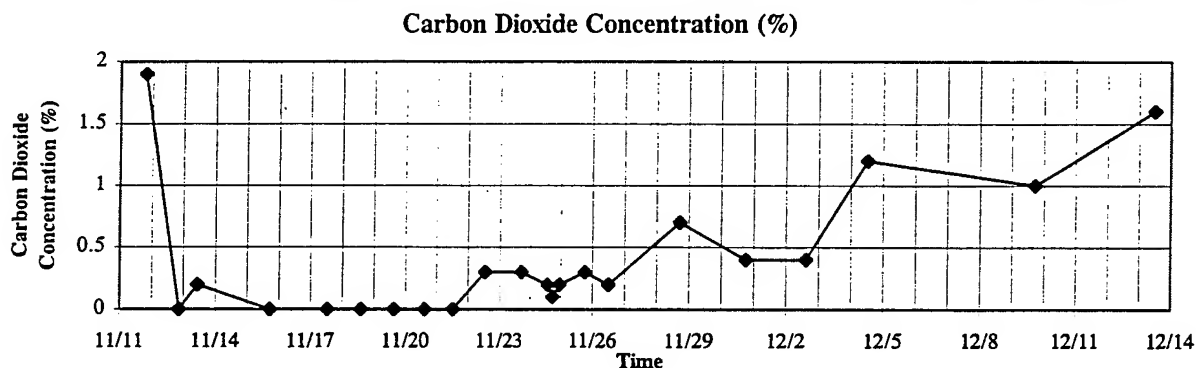
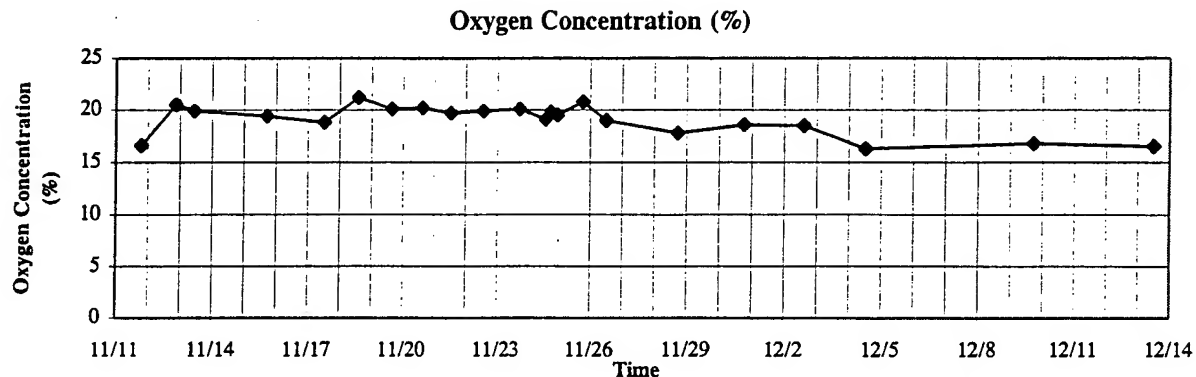


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP3A**

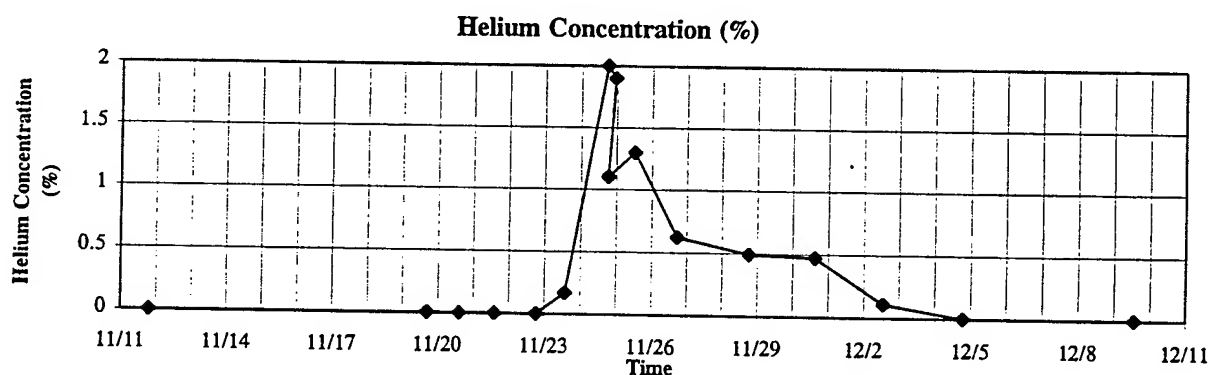
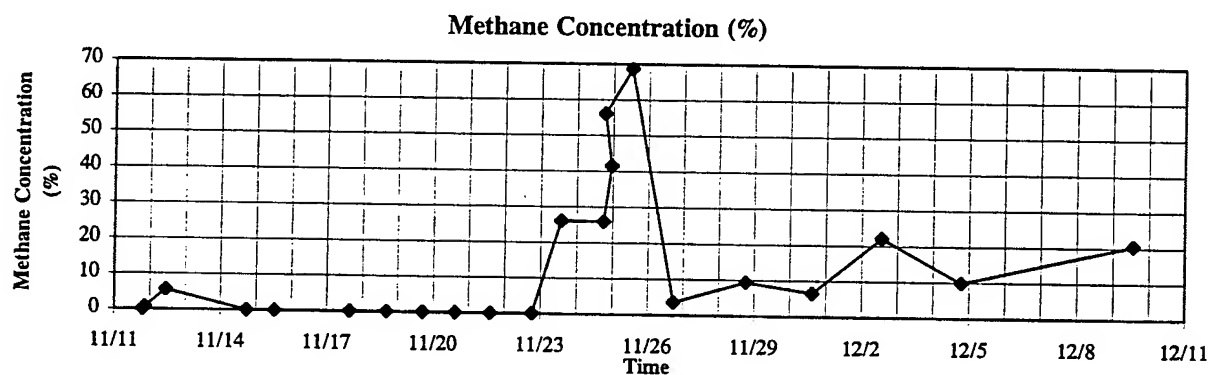
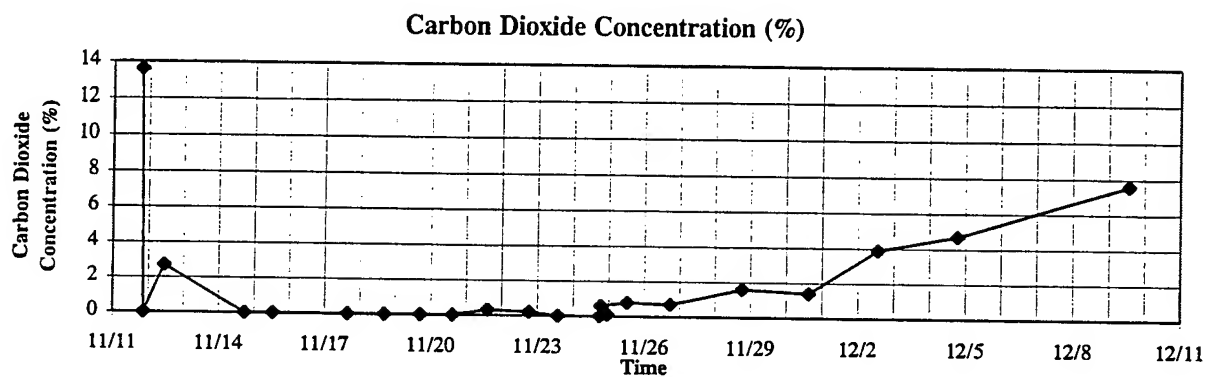
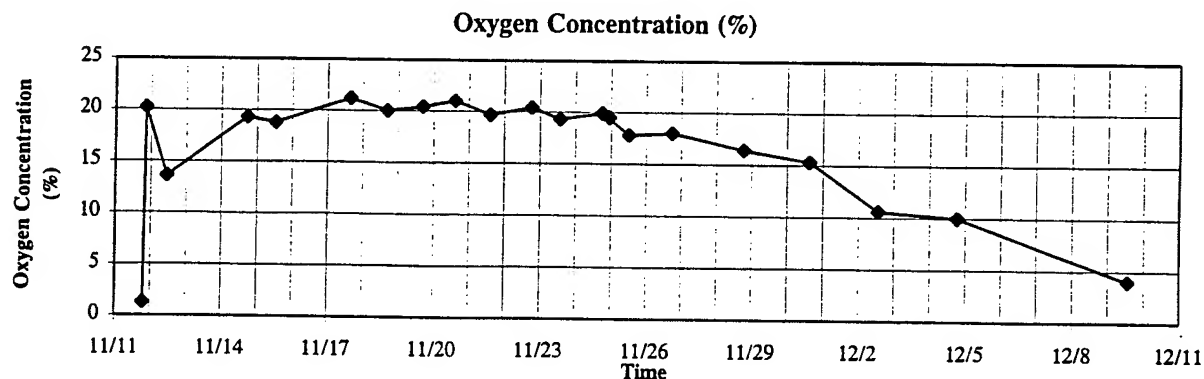


Air Permeability Testing on 11/12/97  
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 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP3B**

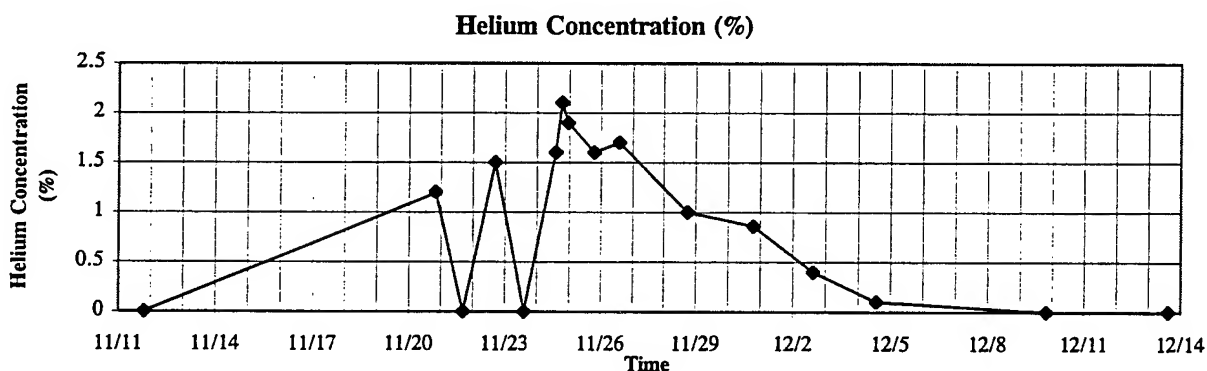
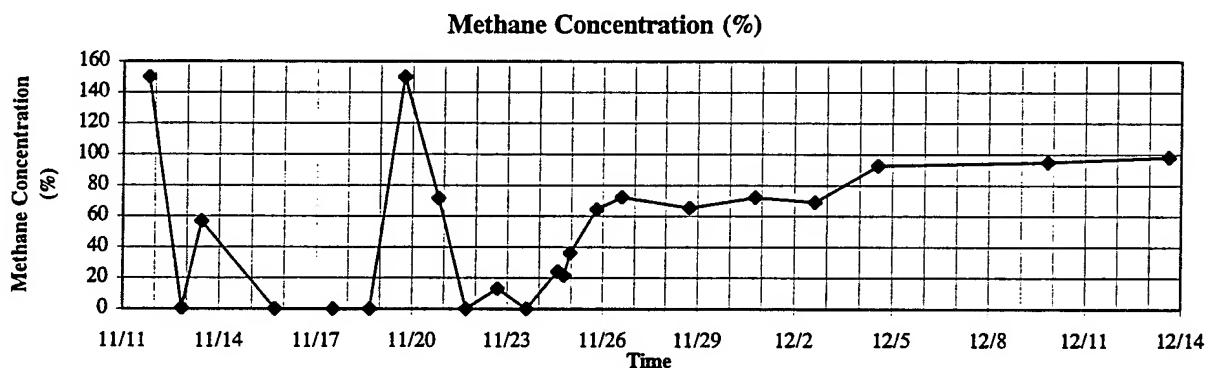
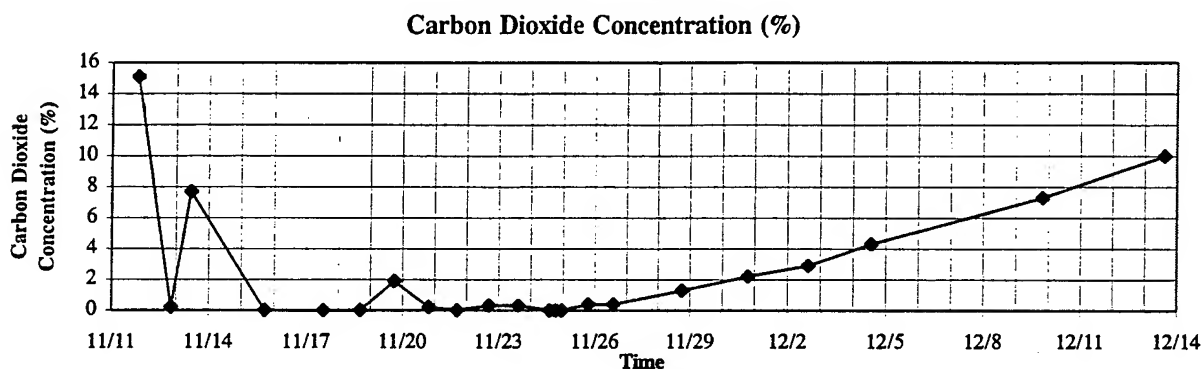
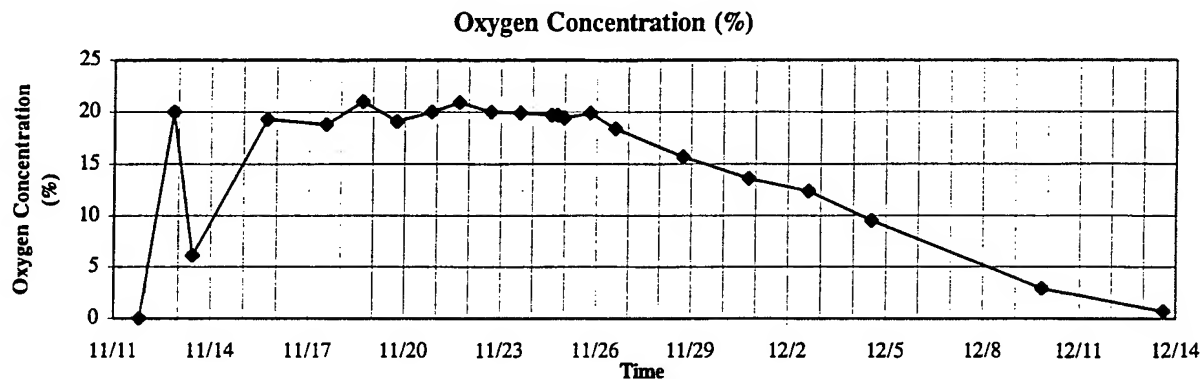


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP3C**

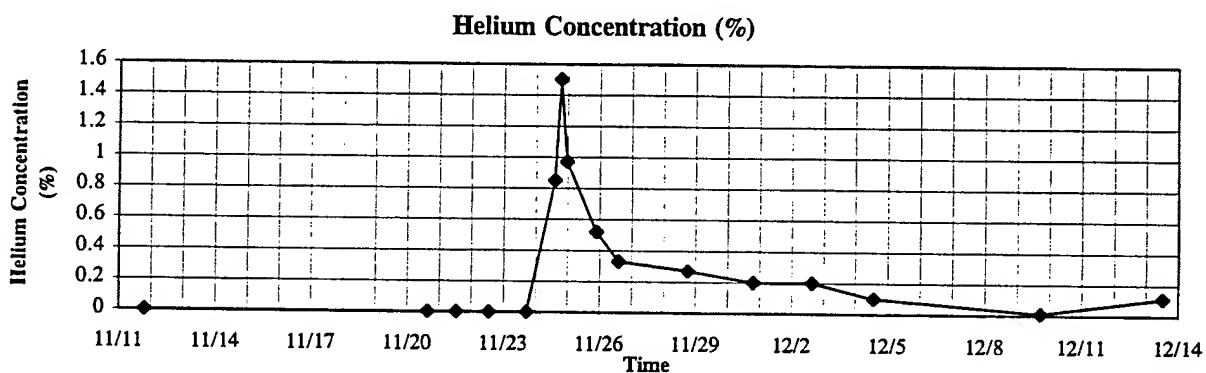
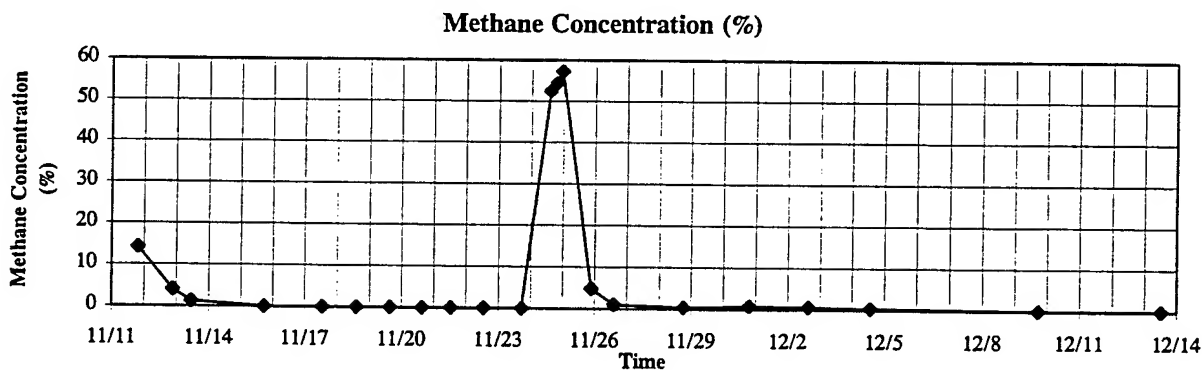
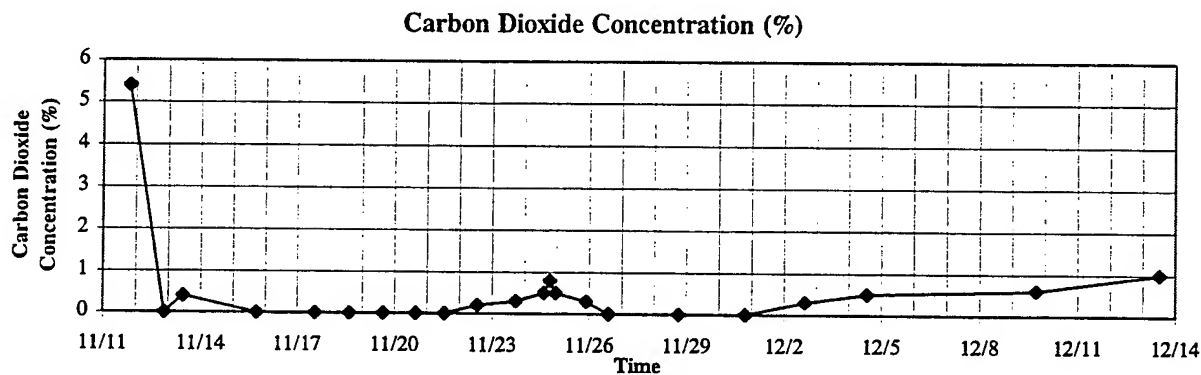
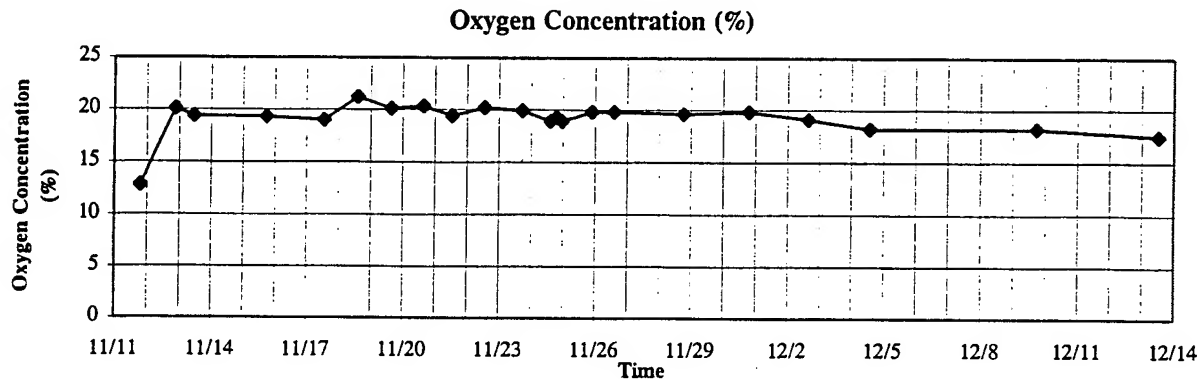


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP4A**



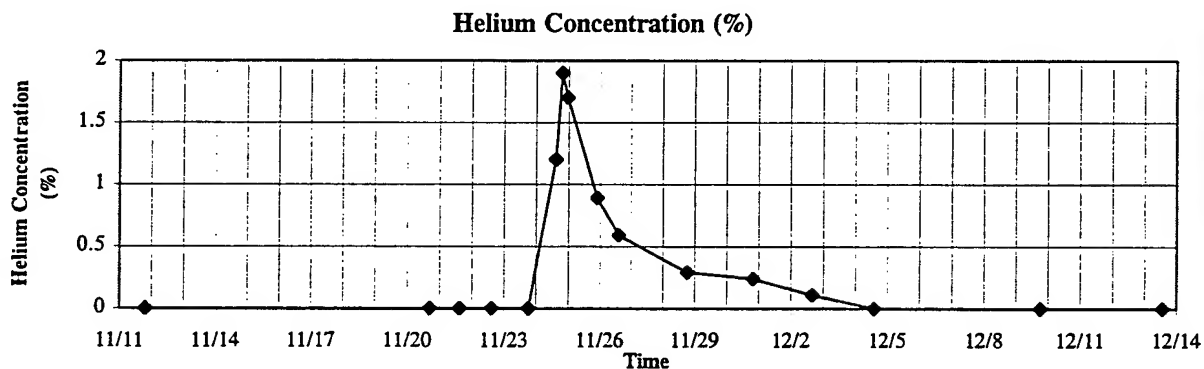
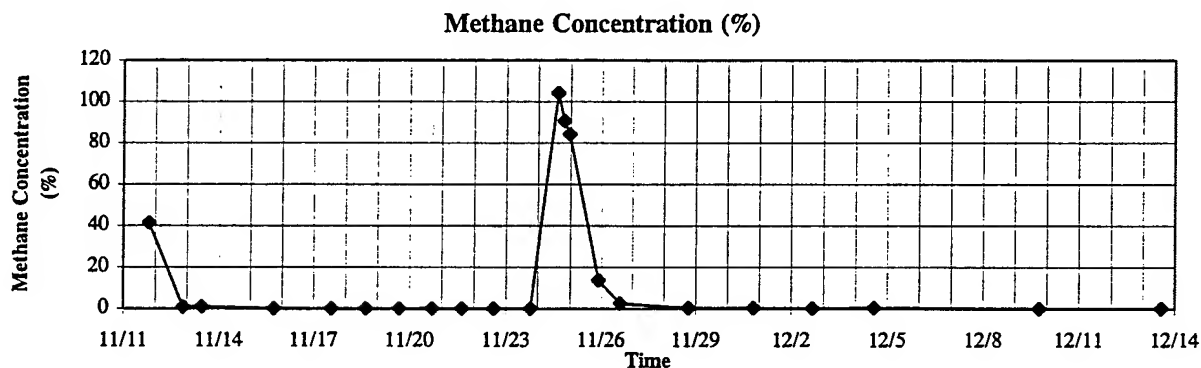
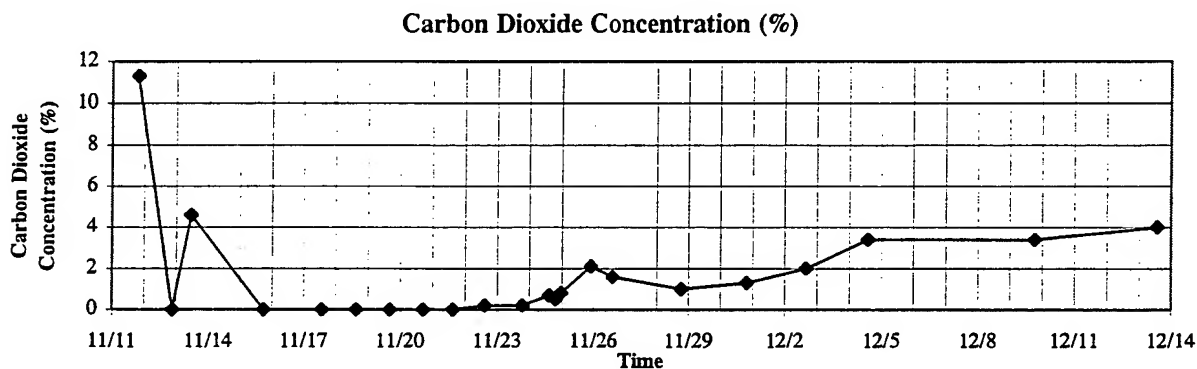
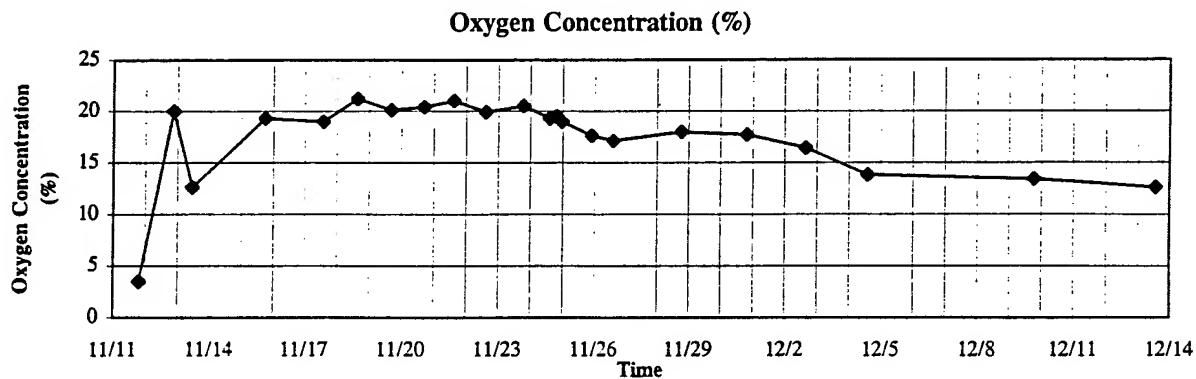
Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP4B**

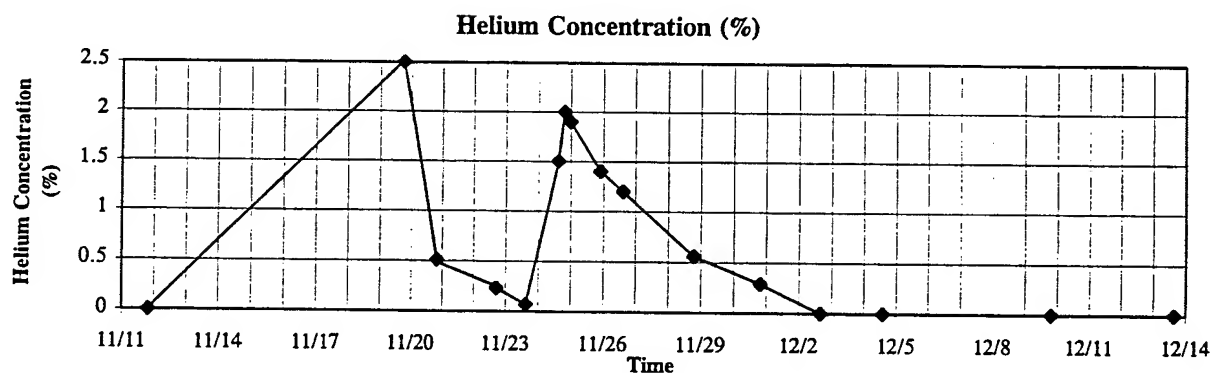
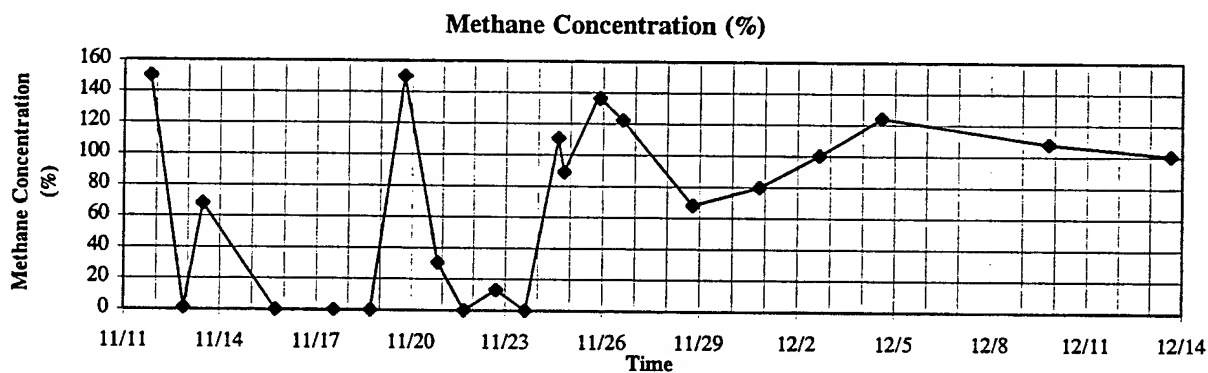
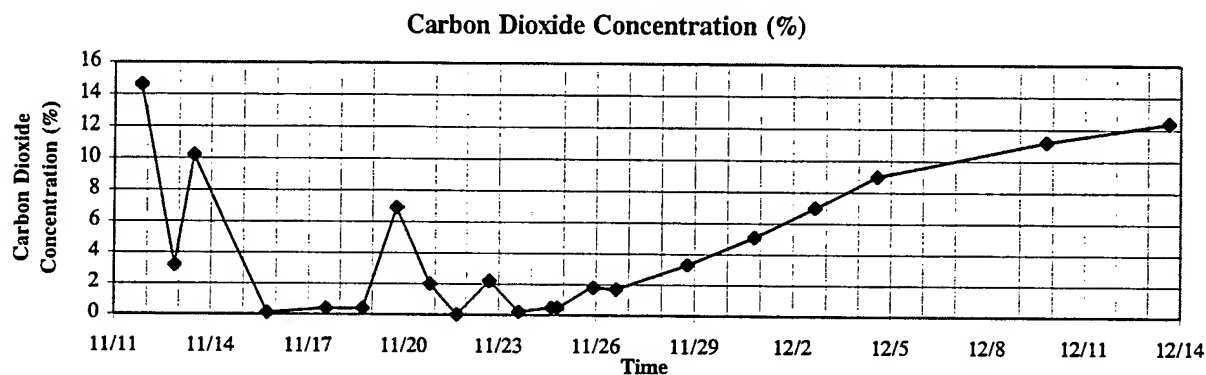
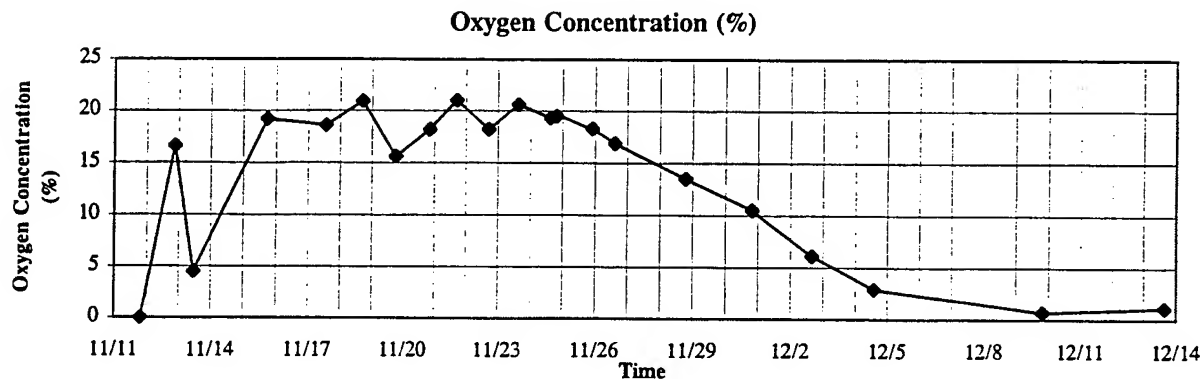


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP4C**

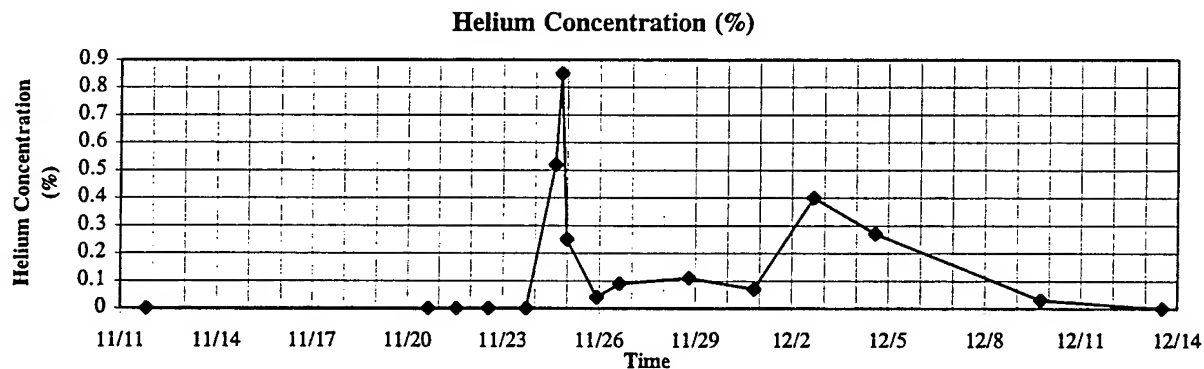
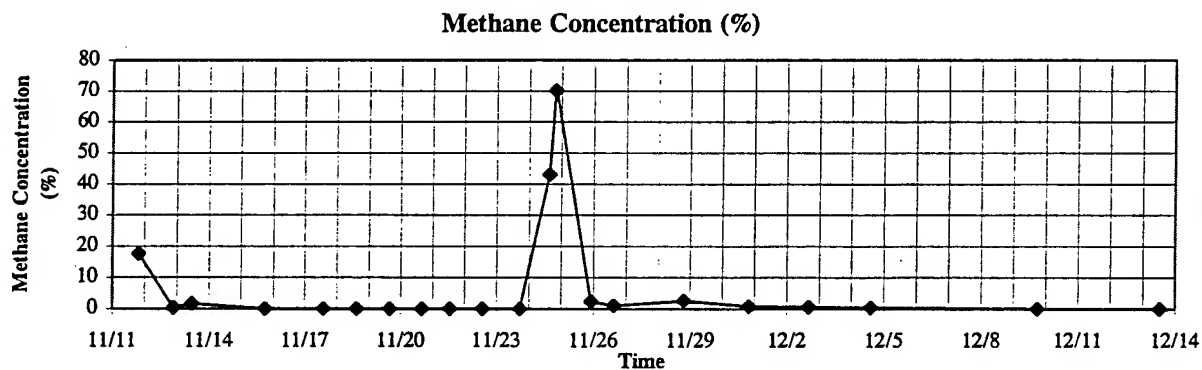
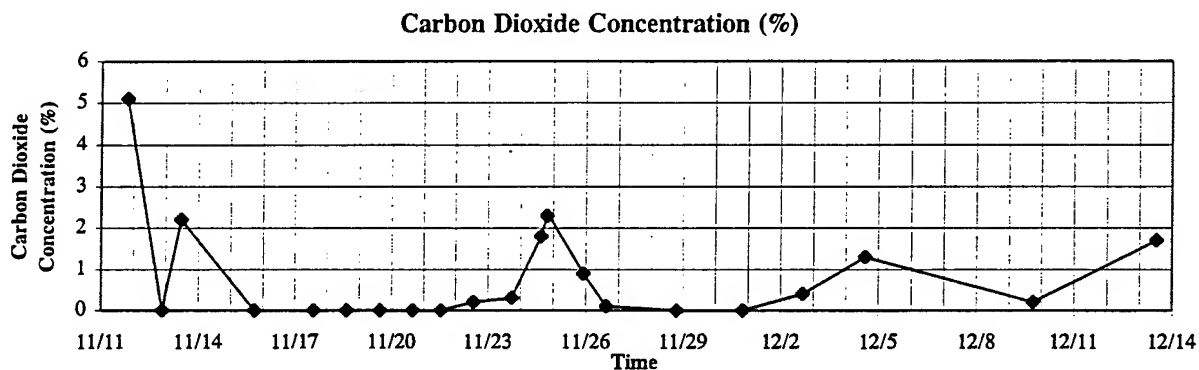
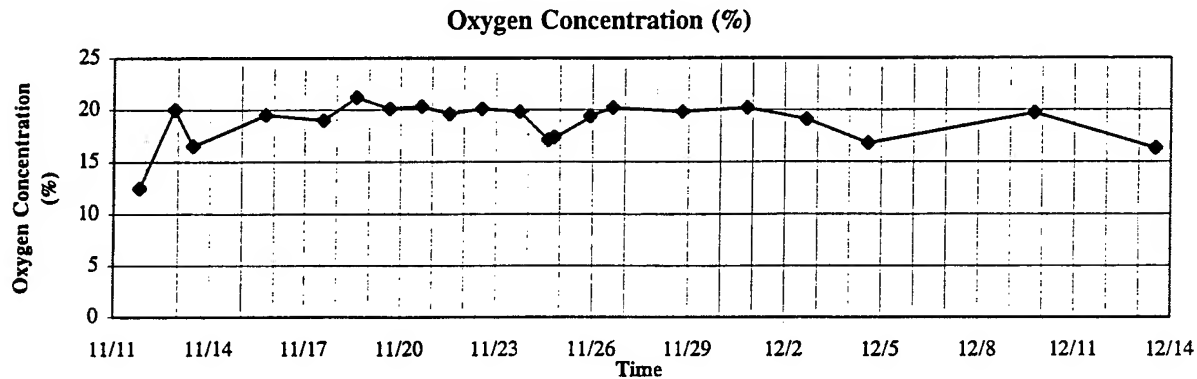


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP5A**

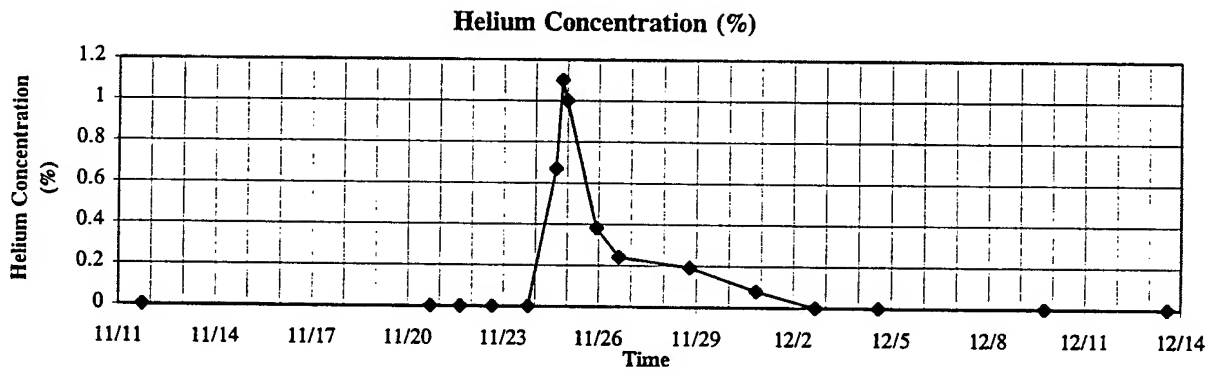
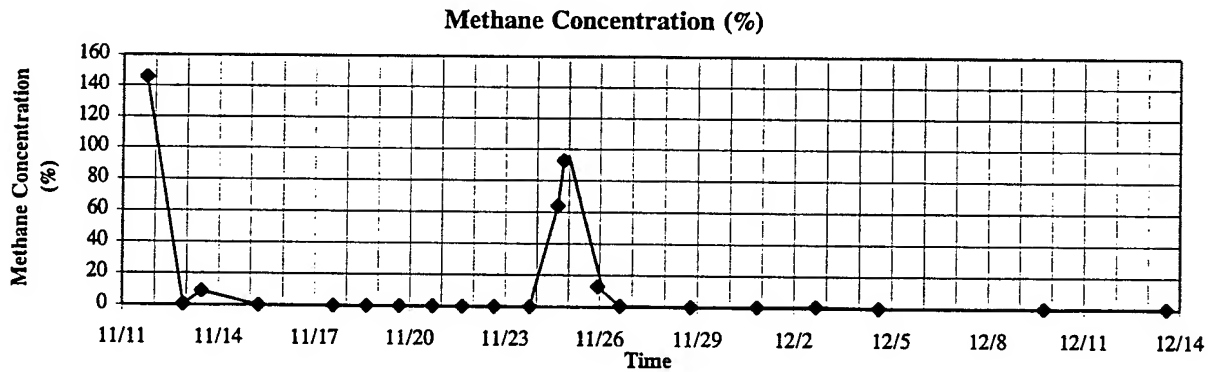
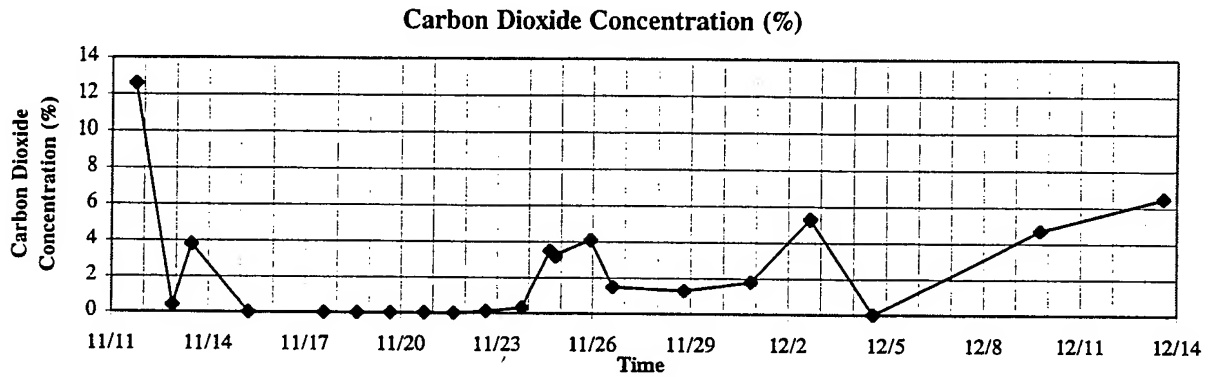
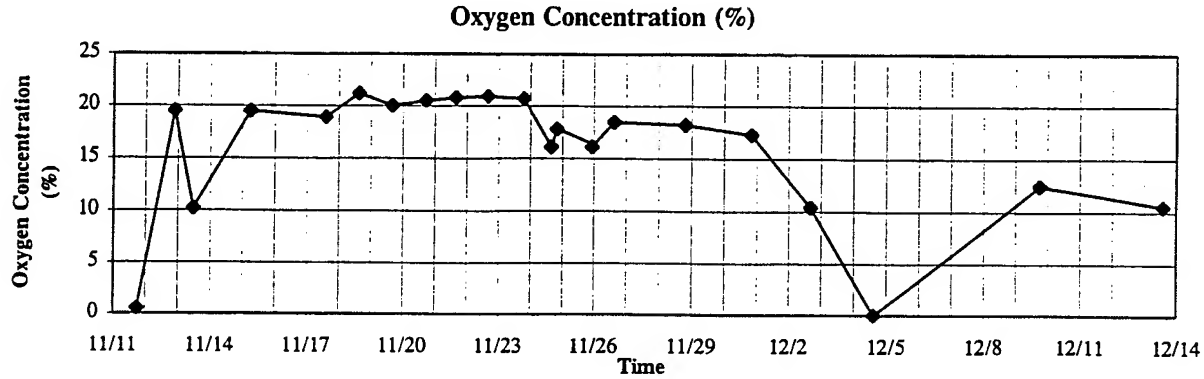


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP5B**

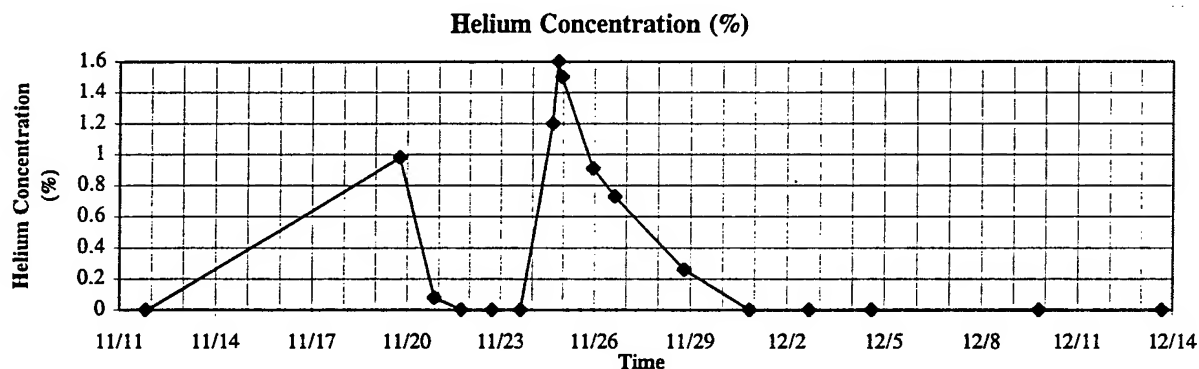
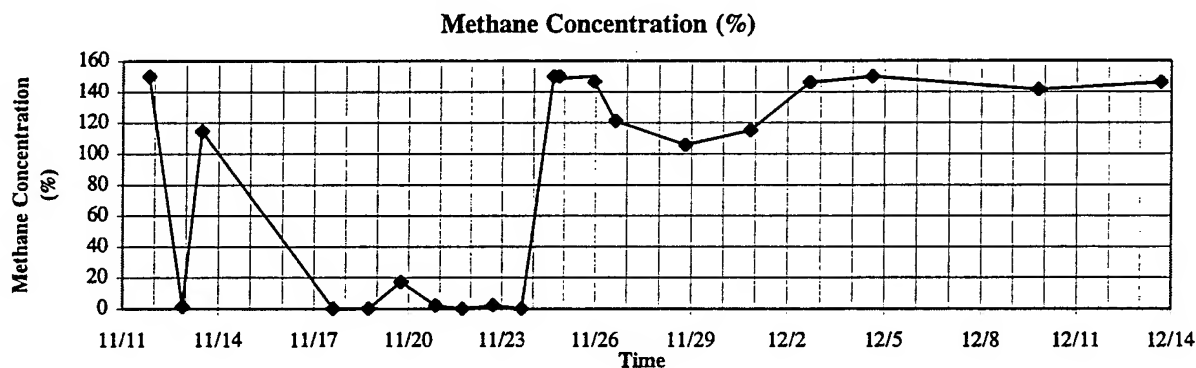
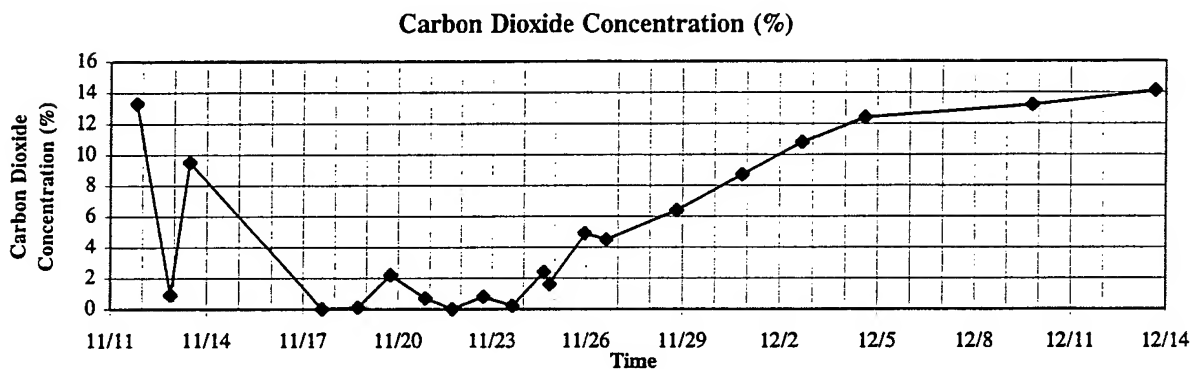
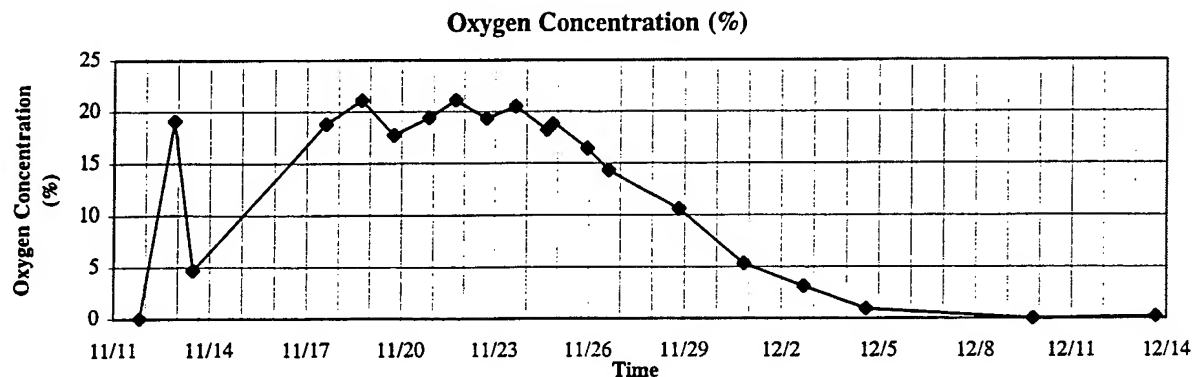


Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**SOIL VAPOR SAMPLING DATA FOR WELL MP5C**

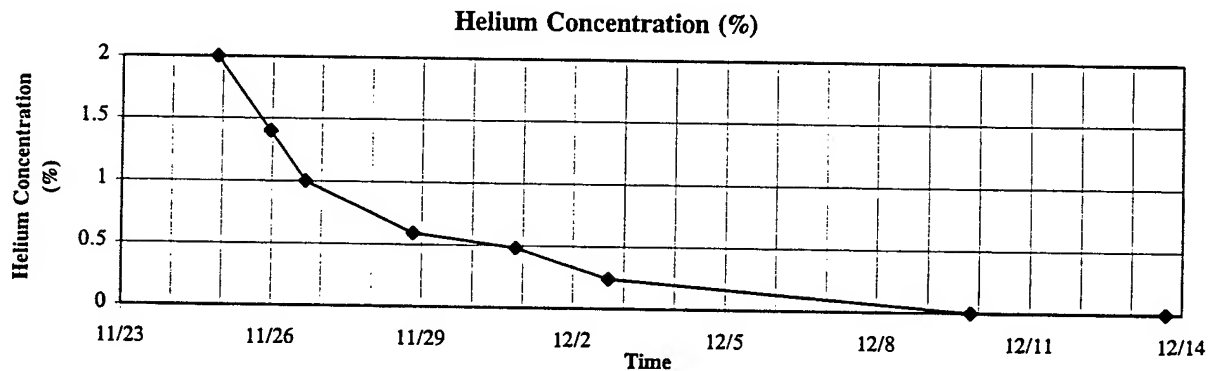
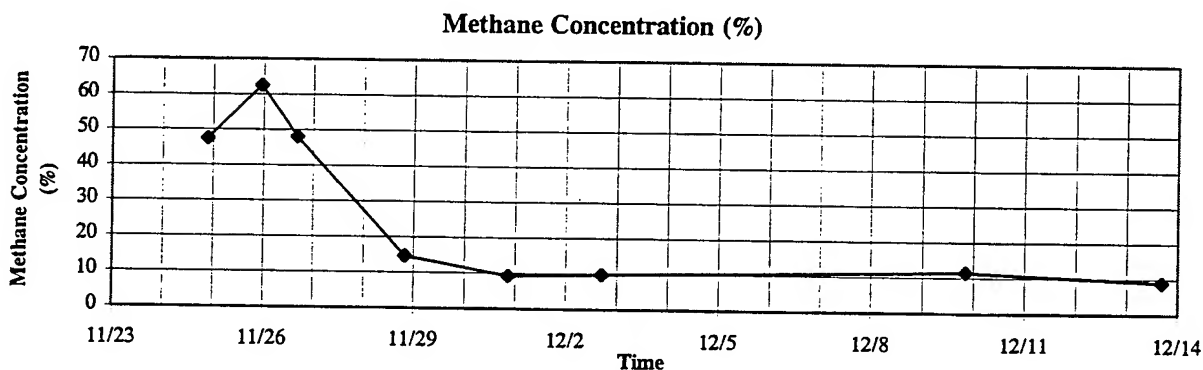
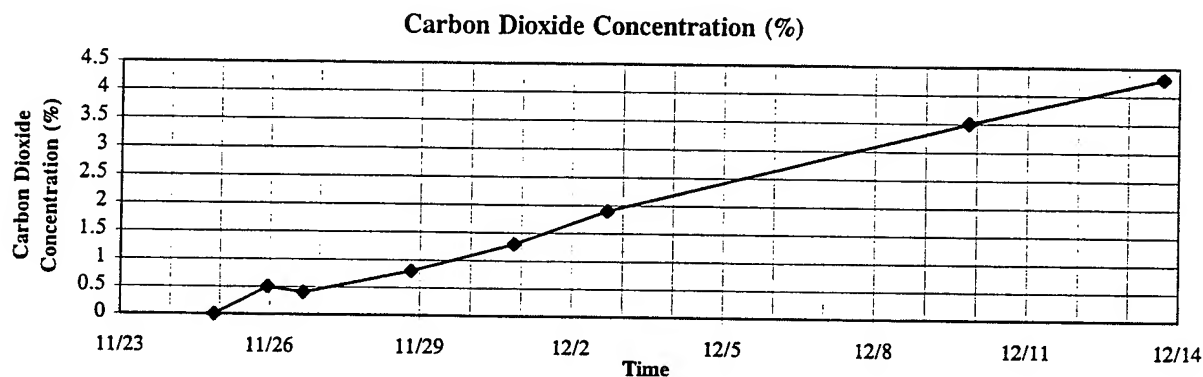
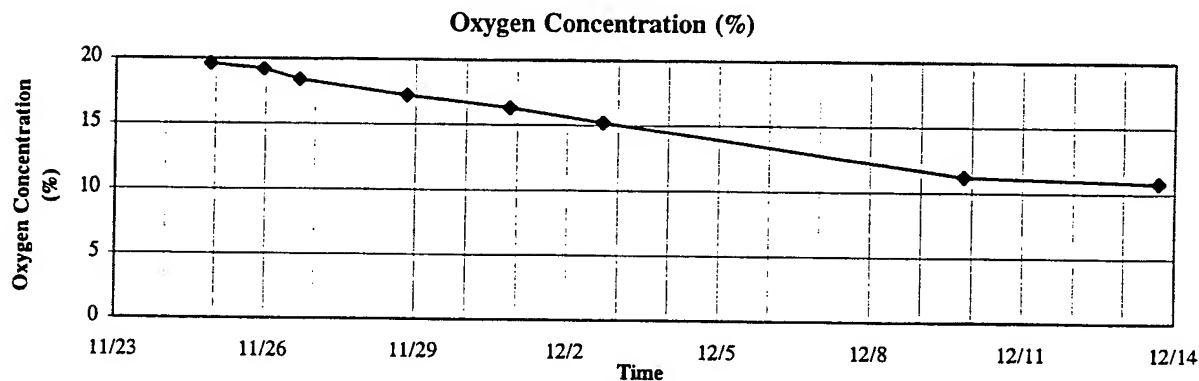


Air Permeability Testing on 11/12/97  
 Constant Rate Extraction 11/13/97 16:00  
 Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
 60% Pulsed Sparge 11/21/97 14:53  
 50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
 SVE Off 11/24/97 10:30  
 Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING  
SITE SS06  
SOIL VAPOR SAMPLING DATA FOR WELL MP6**



Air Permeability Testing on 11/12/97  
Constant Rate Extraction 11/13/97 16:00  
Begin Sparge @ 100% 11/19/97 13:50

80% Pulsed Sparge 11/20/97 14:08  
60% Pulsed Sparge 11/21/97 14:53  
50% Pulsed Sparge 11/22/97 15:00

100% Sparge 11/23/97 16:55  
SVE Off 11/24/97 10:30  
Sparge Off 11/24/97 21:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1D**

Test Location SS06  
Groundwater Monitoring Well MP1D

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 15:53	0.427*	0.33*	5.39	6.74	9.22	1.06	-47.6	0.658*
11/17/97 12:00	0.464*	0.36*	5.91	6.65	7.00	0.81	-13.8	0.715*
11/18/97 10:55	0.478*	0.37*	8.89	6.72	5.60	0.65	-26.4	0.738*
11/19/97 14:39	0.435	0.33	8.91	6.68	8.90	1.03	-28.6	0.670
11/20/97 14:16	0.472	0.36	9.71	6.73	10.50	1.20	-57.3	0.744
11/21/97 11:02	0.342	0.26	7.78	6.89	9.50	1.13	-69.7	0.529
11/22/97 11:22	0.313	0.23	5.07	6.82	28.20	4.21	-46.9	0.420
11/23/97 11:42	0.276	0.20	5.38	6.99	16.10	2.89	-15.8	0.418
11/24/97 12:06	0.280	0.21	8.91	7.20	13.80	1.59	-54.5	0.432
11/25/97 15:31	0.271	0.20	9.93	7.35	6.80	0.76	-27.8	0.419
11/26/97 11:06	0.247	0.18	8.46	7.23	11.50	1.36	-60.7	0.380
11/28/97 13:00	0.269	0.20	10.47	7.13	10.60	1.18	-45.2	0.414
11/30/97 16:35	0.268	0.20	7.16	7.05	45**	5.47**	10**	0.412
12/2/97 10:18	0.269	0.20	7.40	7.19	4.40	0.53	-87.6	0.412
12/4/97 10:36	0.304	0.23	9.39	7.04	4.30	0.50	-42.5	0.467
12/13/97 11:54	0.424	0.28	4.83	6.98	6.80	0.86	14.1	0.653

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1E**

Test Location SS06  
Groundwater Monitoring Well MP1E

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 15:37	0.305*	0.23*	5.79	7.03	3.61	0.42	-98.5	0.470*
11/17/97 12:30	0.293*	0.22*	5.57	6.98	5.10	0.58	-70.6	0.451*
11/18/97 11:25	0.298*	0.22*	8.91	7.06	3.70	0.43	-77.0	0.459*
11/19/97 15:03	0.292	0.22	8.58	6.99	6.10	0.71	-55.8	0.450
11/20/97 14:57	0.250	0.19	9.38	7.13	5.00	0.57	-105.4	0.384
11/21/97 11:24	0.215	0.16	7.09	7.16	10.10	1.22	-92.6	0.330
11/22/97 11:47	0.244	0.18	7.24	7.09	38.80	4.71	-48.8	0.376
11/23/97 13:15	0.212	0.16	6.25	7.39	46.80	5.71	13.0	0.326
11/24/97 12:51	0.207	0.15	8.58	7.47	57.60	6.80	26.2	0.318
11/25/97 15:51	0.208	0.15	9.65	7.41	23.00	2.61	-13.2	0.320
11/26/97 11:31	0.216	0.16	7.59	7.39	21.70	2.54	-18.3	0.336
11/28/97 13:35	0.238	0.18	9.73	7.33	15.20	1.73	2.0	0.366
11/30/97 16:45	0.266	0.20	7.94	7.17	26.9**	3.19**	4.1**	0.410
12/2/97 10:45	0.274	0.20	7.82	7.15	4.30	0.52	-56.6	0.423
12/4/97 10:59	0.330	0.25	8.96	7.06	4.50	0.52	-36.5	0.508
12/13/97 12:26	0.454	0.34	5.37	6.88	11.3**	1.42**	-18.2**	0.699

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1F**

Test Location SS06  
Groundwater Monitoring Well MP1F

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 15:05	0.313*	0.24*	7.08	7.19	2.5	0.3	-115.9	0.480*
11/17/97 13:05	0.307*	0.23*	8.08	7.15	4.5	0.53	-99.8	0.472*
11/18/97 11:45	0.305*	0.23*	8.48	7.22	3.2	0.38	-83.3	0.470*
11/19/97 15:45	0.314	0.23	6.35	7.15	5.5	0.74	-73.1	0.485
11/20/97 15:38	0.303	0.23	8.52	7.18	4.9	0.57	-120.4	0.466
11/21/97 11:51	0.311	0.23	6.9	7.05	8.2	1	-88.1	0.478
11/22/97 12:20	0.315	0.23	6.67	6.98	11.3	1.37	-57.5	0.483
11/23/97 13:35	0.309	0.23	5.95	7.11	13.9	1.74	8.3	0.473
11/24/97 13:19	0.208**	0.15**	8.91**	7.46**	52.2**	6.03**	40.1**	0.32**
11/25/97 16:22	0.315	0.24	9.02	7.08	27.1	3.13	-44.6	0.485
11/26/97 11:51	0.313	0.23	7.79	7.09	36.9	4.39	-38.5	0.489
11/28/97 14:05	0.32	0.24	9.21	7.11	46.2	5.3	-7.5	0.493
11/30/97 17:05	0.32	0.24	7.74	7.17	75.3**	8.96**	29.9**	0.493
12/2/97 11:10	0.317	0.24	7.77	7.12	52	6.18	-27.6	0.486
12/4/97 11:27	0.343	0.26	8.43	7.14	49.9	5.83	-9	0.528
12/13/97 12:52	0.35	0.26	5.2	7.15	55.5**	7.03**	5.9**	0.538

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2D**

Test Location SS06  
Groundwater Monitoring Well MP2D

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/17/97 13:27	0.702*	0.56*	9.82	6.42	6.7	0.76	-53.2	1.08*
11/18/97 12:15	0.699*	0.55*	9.49	6.48	6.7	0.76	-40.5	1.075*
11/19/97 16:18	0.692	0.53	9.64	6.45	24.8	2.8	-15.7	1.065
11/20/97 16:12	0.626	0.48	9.57	6.56	29	3.3	-17.2	0.961
11/21/97 12:17	0.581	0.44	8.34	6.54	24.2	2.82	3.4	0.893
11/22/97 13:36	0.56	0.43	6.94	6.59	22.2	2.69	13.6	0.871
11/23/97 14:00	0.565	0.43	4.26	6.68	34.6	4.5	60.9	0.869
11/24/97 13:52	0.509	0.39	9.53	6.76	35.6	4.05	39	0.783
11/25/97 16:57	0.463	0.35	10.1	6.81	16.5	1.85	2.4	0.713
11/26/97 12:25	0.424	0.32	9.2	6.85	22.6	2.59	-21.4	0.652
11/28/97 14:25	0.368	0.27	10.17	7	12.8	1.43	-17	0.565
11/30/97 17:25	0.335	0.25	4.77	7.07	4.6	0.52	-20.1	0.516
12/2/97 11:39	0.309	0.23	8.87	7.04	4.6	0.52	-55.4	0.476
12/4/97 12:10	0.316	0.24	10.43	7.08	4.5	0.5	-52.7	0.487
12/13/97 13:14	0.336	0.25	5.11	7.12	13.4**	1.69**	-0.6**	0.516

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2E**

Test Location SS06  
Groundwater Monitoring Well MP2E

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 13:55	0.384*	0.3*	8.21	6.95	3.8	0.45	-134.8	0.591*
11/17/97 13:50	0.367*	0.28*	8.86	6.95	4.2	0.49	-108	0.566*
11/18/97 14:51	0.368*	0.28*	8.79	7.03	3.2	0.39	-76.3	0.564*
11/19/97 16:45	0.364	0.27	9.06	6.92	5.9	0.68	-49.8	0.56
11/20/97 16:48	0.347	0.26	8.61	6.98	5.7	0.68	-93.3	0.535
11/21/97 12:46	0.333	0.25	8.4	6.98	6.9	0.82	-89.7	0.514
11/22/97 14:12	0.338	0.25	6.98	7.05	10.1	1.21	-50.7	0.526
11/23/97 14:21	0.351	0.26	4.41	7.04	11.3	1.47	-39.4	0.538
11/24/97 14:22	0.314	0.23	8.35	7.1	34.2	4.01	-31.1	0.482
11/25/97 17:27	0.305	0.23	9.52	7.13	32.4	3.7	-38.7	0.466
11/26/97 14:01	0.295	0.22	8.67	7.17	38.5	4.48	-35.8	0.453
11/28/97 15:00	0.291	0.2	9.49	7.21	21.6	2.45	-7	0.45
11/30/97 17:45	0.303	0.23	4.19	7.21	8.3	0.95	-20.4	0.466
12/2/97 12:05	0.284	0.21	8.45	7.17	6.5	0.77	-49	0.438
12/4/97 13:22	0.299	0.22	9.73	7.2	4.6	0.53	-42.9	0.461
12/13/97 13:37	0.429	0.32	5.38	7.04	12.1**	1.52**	-4.6**	0.661

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2F**

Test Location SS06  
Groundwater Monitoring Well MP2F

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 14:35	0.364*	0.28*	6.49	7.1	3.6	0.42	-125.5	0.56
11/17/97 14:30	0.349*	0.27	7.96	7.1	3.2	0.37	-111.9	0.538
11/18/97 14:21	0.342*	0.26	8.43	7.18	3.2	0.37	-58.6	0.526
11/19/97 17:14	0.348	0.26	8.62	7.1	4.8	0.56	-59.9	0.536
11/20/97 17:05	0.341	0.25	7.82	7.15	5.1	0.61	-100.3	0.527
11/21/97 13:05	0.337	0.25	7.58	7.09	5.7	0.68	-102.3	0.519
11/22/97 14:46	0.336	0.25	6.66	7.05**	34.7**	4.24**	-46.8**	0.517
11/23/97 14:52	0.306	0.23	4	7.14	5.5	0.71	-74.7	0.47
11/24/97 14:47	0.292	0.222	7.78	7.15	6.2	0.74	-65.6	0.449
11/25/97 17:48	0.285	0.21	8.55	7.18	6.1	0.71	-44.9	0.437
11/26/97 14:24	0.288	0.21	8.61	7.21	15.9	1.85	-47	0.442
11/28/97 15:50	0.29	0.22	9.31	7.25	8.7	0.99	-18.7	0.447
11/30/97 18:00	0.297	0.22	8.63	7.24	3.6	0.42	-20.6	0.457
12/2/97 12:51	0.294	0.22	8.43	7.19	4.1	0.48	-66.2	0.453
12/4/97 14:17	0.305	0.23	9.85	7.24	3.6	0.41	-59.9	0.466
12/13/97 14:11	0.314	0.23	5.27	7.24	7.4**	0.93**	-25.2**	0.482

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3D**

Test Location SS06  
Groundwater Monitoring Well MP3D

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 13:10	0.567*	0.45*	10.83	6.46	5.2	0.58	-79.8	0.871*
11/17/97 15:34	0.562*	0.44*	9.56	6.52	5.7	0.66	-58	0.865*
11/18/97 15:20	0.531*	0.41*	9.31	6.62	4.8	0.55	-43.4	0.818*
11/19/97 18:03	0.718	0.55	9.3	6.43	8.1	0.93	-27.6	1.104
11/20/97 18:39	0.579	0.44	9.09	6.91	7.7	0.89	-84.1	0.89
11/21/97 13:34	0.382	0.29	8.15	7.11	5.8	0.68	-87.4	0.588
11/22/97 15:49	0.308	0.23	7.23	7.21	8.7	1.05	-65.7	0.471
11/23/97 15:29	0.293	0.22	5.34	7.41	31.1	3.91	-31.6	0.453
10/24/97 15:18	0.328	0.24	8.71	7.43	17.5	2.03	-10.5	0.504
11/25/97 18:08	0.293	0.22	9.32	7.2	5.9	0.68	-29.4	0.452
11/26/97 14:51	0.284	0.21	9.41	7.25	17.5	2	-16.4	0.439
11/28/97 16:10	0.318	0.24	9.56	7.21	7.8	0.89	-16.7	0.491
11/30/97 18:15	0.353	0.26	9.41	7.18	3.6	0.41	-18.6	0.542
12/2/97 14:23	0.361	0.27	8.77	7.07	4.8	0.54	-51.5	0.556
12/13/97 14:36	0.628	0.48	5.39	6.89	10.7**	1.35**	-13.7**	0.966

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3E**

Test Location SS06  
Groundwater Monitoring Well MP3E

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 12:48			9.85	6.84	3.2	0.37	-68.6	0.654*
11/17/97 16:40	0.437*	0.67*	9.03	6.91	4	0.46	-92.6	0.673*
11/18/97 15:42	0.437*	0.64*	8.83	6.97	3.6	0.42	-65.2	0.673*
11/19/97 16:32	0.408	0.31	9.68	6.83	23.7	2.69	-10.4	0.627
11/20/97 19:02	0.396	0.3	8.87	6.92	47.2	5.45	-0.9	0.61
11/21/97 14:11	0.404	0.3	7.1	6.88	34.8	4.19	-17.1	0.622
11/22/97 16:36	0.37	0.28	6.36	6.99	26.1	3.22	-33.7	0.576
11/23/97 15:48	0.371	0.28	4.22	6.95	40.5	5.28	32.2	0.574
11/24/97 16:10	0.345	0.26	6.56	6.98	50.2	6.16	3.6	0.533
11/25/97 18:37	0.344	0.26	8.86	6.95	8.7	1.01	-49.5	0.528
11/26/97 15:25	0.35	0.26	8.8	6.97	16.9	1.97	-58.9	0.539
11/28/97 17:20	0.347	0.26	8.86	7.05	8.3	0.97	-43	0.535
11/30/97 18:30	0.418	0.31	9	7.06	4.3	0.5	-66.8	0.642
12/2/97 18:50	0.468	0.35	8.06	6.97	6.1	0.68	-92.1	0.72
12/13/97 15:00	0.429	0.32	7.53	6.93	11.4**	1.36**	-29.7**	0.662

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4D**

Test Location SS06  
Groundwater Monitoring Well MP4D

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 17:15	0.836*	0.66*	9.48	6.55	5.3	0.65	-76.3	1.29*
11/17/97 17:20	0.619*	0.49*	9.66	6.58	5.5	0.67	-67.5	0.953*
11/18/97 16:25	0.608*	0.48*	8.84	6.64	5.3	0.62	-40	0.94*
11/19/97 19:00	0.662	0.51	9.89	6.56	7	0.8	-33	1.022
11/20/97 19:25	0.394**	0.3**	7.44**	7.92**	106.5**	12.8**	-73.7**	0.606**
11/21/97 14:53	0.604	0.46	7.42	6.6	7.7	0.92	-56.3	0.932
11/22/97 17:08	0.396**	0.3**	5.79**	6.87**	11.9**	1.45**	-52.4**	0.615**
11/24/97 16:45	0.614	0.47	7.19	6.69	8.7	1.05	-37.9	0.945
11/25/97 21:58	0.58	0.44	9.25	6.81	9.8	1.13	-40	0.896
11/26/97 16:25	0.602	0.46	8.19	6.67	20.5	2.45	-33.9	0.925
11/28/97 17:50	0.623	0.48	9.6	6.64	15.8	1.8	-19.7	0.959
11/30/97 18:55	0.644	0.49	9.84	6.63	4.8	0.54	-20.1	0.991
12/2/97 17:23	0.635	0.49	8.6	6.51	5.3	0.61	-30.5	0.979
12/13/97 15:28	0.711	0.54	5.55	6.61	15.1**	1.88**	-2**	1.094

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4E**

Test Location SS06  
Groundwater Monitoring Well MP4E

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 16:52	0.536*	0.42*	9.01	6.82	4.9	0.59	-95.2	1.554*
11/17/97 17:50	0.422*	0.33*	8.5	6.81	4	0.46	-87.5	1.257*
11/18/97 17:07	0.43*	0.33*	8.08	6.88	3.7	0.43	-72.8	1.249*
11/19/97 19:30	0.43	0.32	9.37	6.81	5.2	0.59	-61.3	0.662
11/20/97 19:48	0.388**	0.29**	5.61**	8.34**	110.6**	13.89**	15.1**	0.596**
11/21/97 15:35	0.412	0.31	6.5	6.8	5.6	0.68	-80.6	0.634
11/22/97 17:45	0.553**	0.42**	6.55	6.78	7.4	0.9	-45.9	0.857**
11/24/97 17:26	0.395	0.3	6.95	6.82	7	0.85	-67.8	0.611
11/25/97 10:19	0.396	0.3	8.61	6.86	8.3	0.96	-71.4	0.608
11/26/97 16:50	0.401	0.3	8.27	6.83	18.7	2.19	-67.5	0.617
11/28/97 18:15	0.389	0.29	8.62	6.87	12.7	1.48	-55.6	0.599
11/30/97 19:10	0.392	0.29	8.9	6.87	3.7	0.43	-67	0.604
12/2/97 17:45	0.383	0.29	7.77	6.81	4.3	0.51	-83.6	0.588
12/13/97 15:57	0.511	0.39	6.44	6.76	19.3**	1.58**	-35.6**	0.786

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.



**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5D**

Test Location SS06  
Groundwater Monitoring Well MP5D

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 17:40	0.610*	0.9*	8.63	6.63	6.46	0.78	-66.4	.941*
11/17/97 19:03	0.806*	1.2*	6.84	6.51	5.8	0.7	-35.2	1.240*
11/18/97 17:49	0.751*	1.12*	9.68	6.56	5.4	0.62	-43.1	1.155*
11/19/97 19:59	0.773	0.6	10.31	6.49	7.4	0.84	-33.3	1.189
11/20/97 20:15	0.385**	0.29**	4.15**	8.47**	110.7**	14.43**	39.3**	0.591**
11/21/97 16:25	0.809	0.62	6.55	6.48	7.5	0.92	-45.2	1.241
11/22/97 18:09	0.562**	0.41**	5.05**	7.57**	112.5**	11.1**	-106.2**	**0.882
11/24/97 18:14	0.834	0.64	8.22	6.5	10.7	1.26	-40.4	1.281
11/25/97 22:47	0.792	0.61	9.2	6.51	11.4	1.3	-43.6	1.22
11/26/97 17:15	0.804	0.62	9	6.51	35.3	4.06	-34.5	1.236
11/28/97 18:30	0.801	0.62	4.6	6.52	19.1	2.16	-36.2	1.235
11/30/97 19:35	0.836	0.65	9.8	6.52	5.1	0.58	-38.2	1.287
12/2/97 18:11	0.787	0.61	9.04	6.45	6.2	0.72	-47.2	1.214
12/13/97 16:17	0.851	0.66	6.26	6.5	16.5**	2.03**	-14.8**	1.323

\* Data corrected based on a calibration error.

\*\* Data not used in plots due to data collection error.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS06**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5E**

Test Location SS06  
Groundwater Monitoring Well MP 5-E

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/14/97 15:55	0.433*	0.33*	8.75	6.82	0.58		-104.6	0.666*
11/17/97 16:22	0.540*	0.44*	8.55	6.79	0.51		-87.3	0.829*
11/18/97 18:25	0.543*	0.42*	7.57	6.87	4.3	0.51	-63.5	0.837*
11/19/97 20:32	0.529	0.4	8.26	6.82	5.4	0.64	-54.6	0.813
11/20/97 20:37	0.529	0.4	8.88	6.92	34.1	3.89**	-83.3	0.817
11/21/97 17:00	0.546	0.41	5.21	6.79	5.6	0.71	-72.4	0.839
11/22/97 18:36	0.409**	0.39**	5.22**	7.15**	34.6**	4.59**	-35.8**	0.639**
11/24/97 18:59	0.55	0.42	6.86	6.8	8.4	1.03	-59.4	0.846
11/25/97 23:15	0.563	0.43	8.38	6.79	9.8	1.15	-67.8	0.865
11/26/97 17:40	0.572	0.43	8.18	6.77	37	4.35	-52.3	0.888
11/28/97 19:00	0.581	0.44	7.99	6.79	15.9	1.88	-54.5	0.894
11/30/97 19:45	0.603	0.46	8.47	6.78	4.3	0.5	-63.3	0.926
12/2/97 18:38	0.564	0.43	8.11	6.73	4.9	0.58	-73.1	0.872
12/13/97 16:39	0.71	0.54	5.13	6.69	14.7**	1.85**	-28.2**	1.091

\* Data corrected based on a calibration error.

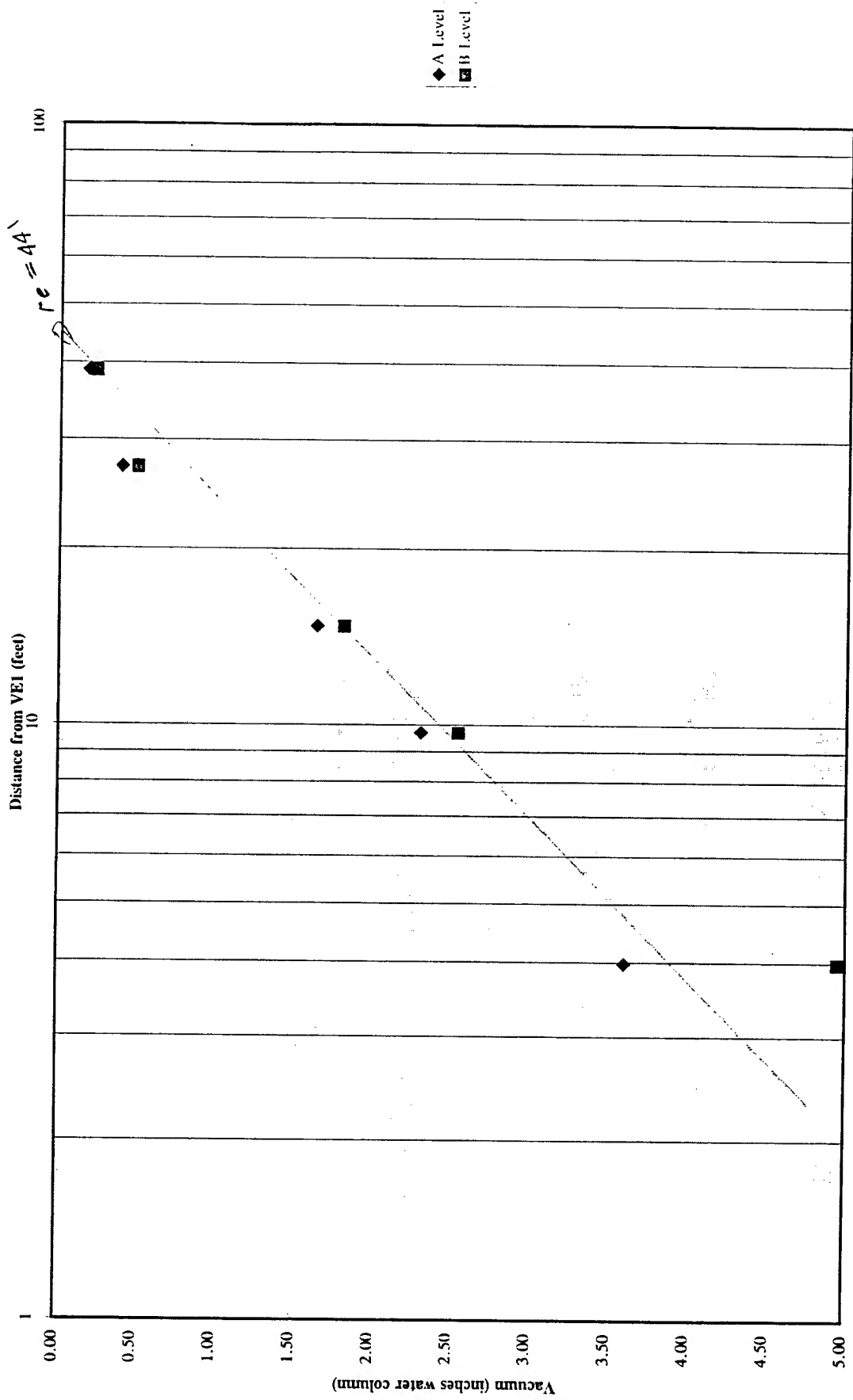
\*\* Data not used in plots due to data collection error.

**APPENDIX C**  
**PILOT TEST DATA AND ANALYSES FOR SITE SS-08A**

WURTSMITH AFB PILOT TESTING  
SITE SS08A  
STEADY STATE SOIL PERMEABILITY CALCULATIONS  
EFFECTIVE RADIUS METHOD

SS08Aeq1	n or b (ft)	P <sub>aum</sub> (psi)	Q <sub>v</sub> (scfm)	P <sub>aum</sub> -P* (in. H <sub>2</sub> O)	P <sub>aum</sub> -P (ft H <sub>2</sub> O)	r (ft)	r <sub>e</sub> (ft)	μ (kg/m.sec)	Air temp. °F	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1	11.92	14.17	152	19.2	8.12	5.11	54	1.76E-05	46	6.20E-11	62.8	3.47	0.05	149.92
MP2	12.29	14.17	152	19.2	6.01	10.25	54	1.76E-05	46	5.71E-11	57.8	3.20	0.05	138.08
MP3	12.4	14.17	152	19.2	3.92	15.64	54	1.76E-05	46	6.45E-11	65.3	3.62	0.06	156.05
MP4	12.58	14.17	152	19.2	1.78	24.27	54	1.76E-05	46	9.01E-11	91.3	5.05	0.08	218.03
MP5	12.79	14.17	152	19.2	1.35	40.6	54	1.76E-05	46	4.17E-11	42.2	2.34	0.04	100.79

# WURTSMITH AFB PILOT TESTING SITE SS08B STEADY STATE DISTANCE PLOT



**WURTSMITH AFB PILOT TESTING  
SITE SSO8A  
STEADY STATE SOIL PERMEABILITY CALCULATIONS  
TWO WELL METHOD**

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (ft)	r <sub>2</sub> (ft)	P <sub>atm</sub> -P* (in. H <sub>2</sub> O)	Q <sub>v</sub> (scfm)	μ (kg/m,sec)	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	8.12	6.01	5.11	10.25	19.2	152.00	1.76E-05	70.8	3.92	5.96E-02	1.69E+02
MP1-MP3	8.12	3.92	5.11	15.64	19.2	152.00	1.76E-05	35.2	1.95	2.96E-02	8.40E+01
MP1-MP4	8.12	1.78	5.11	24.27	19.2	152.00	1.76E-05	51.6	2.86	4.35E-02	1.23E+02
MP1-MP5	8.12	1.35	5.11	40.6	19.2	152.00	1.76E-05	63.7	3.53	5.37E-02	1.52E+02
MP2-MP3	6.01	3.92	10.25	15.64	19.2	152.00	1.76E-05	42.3	2.34	3.56E-02	1.01E+02
MP2-MP4	6.01	1.78	10.25	24.27	19.2	152.00	1.76E-05	42.2	2.34	3.56E-02	1.01E+02
MP2-MP5	6.01	1.35	10.25	40.6	19.2	152.00	1.76E-05	60.7	3.36	5.12E-02	1.45E+02
MP3-MP4	3.92	1.78	15.64	24.27	19.2	152.00	1.76E-05	42.2	2.34	3.56E-02	1.01E+02
MP3-MP5	3.92	1.35	15.64	40.6	19.2	152.00	1.76E-05	76.3	4.22	6.43E-02	1.82E+02
MP4-MP5	1.78	1.35	24.27	40.6	19.2	152.00	1.76E-05	241.5	13.37	2.03E-01	5.77E+02

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08A**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**PSEUDO STEADY STATE METHOD**

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (m)	r <sub>2</sub> (m)	Q <sub>v</sub> (m <sup>3</sup> /min)	μ (kg/m.sec)	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	8.12	6.01	1.56	3.12	4.30	1.76E-05	1.10E-11	11.13	0.62	5.20E-04	1.47
MP1-MP3	8.12	3.92	1.56	4.77	4.30	1.76E-05	8.80E-12	8.92	0.49	4.16E-04	1.18
MP1-MP4	8.12	1.78	1.56	7.40	4.30	1.76E-05	8.06E-12	8.16	0.45	3.81E-04	1.08
MP1-MP5	8.12	1.35	1.56	12.37	4.30	1.76E-05	9.96E-12	10.09	0.56	4.71E-04	1.33
MP2-MP3	6.01	3.92	3.12	4.77	4.30	1.76E-05	6.61E-12	6.69	0.37	3.12E-04	0.89
MP2-MP4	6.01	1.78	3.12	7.40	4.30	1.76E-05	6.62E-12	6.70	0.37	3.13E-04	0.89
MP2-MP5	6.01	1.35	3.12	12.37	4.30	1.76E-05	1.06E-11	10.70	0.59	4.99E-04	1.42
MP3-MP4	3.92	1.78	4.77	7.40	4.30	1.76E-05	6.63E-12	6.72	0.37	3.13E-04	0.89
MP3-MP5	3.92	1.35	4.77	12.37	4.30	1.76E-05	1.20E-11	12.14	0.67	5.67E-04	1.61
MP4-MP5	1.78	1.35	7.40	12.37	4.30	1.76E-05	3.81E-11	38.54	2.13	1.80E-03	5.10

**WURTSMITH AFB PILOT TESTING  
SITE SS08A  
TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Well	$W(u,r/B)$	$1/u$	$r/B$	Vacuum (in H <sub>2</sub> O)	Time (min)	$r$ (ft)	$k_a$ (darcies)	$K_w$ (cm/sec)	$K_w$ (ft/day)	$n_a$	$K'w$ (cm/sec)
MP1A	1	1	0.62	3.10	0.19	5.11	34.90	2.94E-02	83.3	3.5	5.49E-03
MP1B	1	1	0.62	5.60	0.12	5.11	19.30	1.63E-02	46.1	1.24	3.04E-03
MP2A	1	1	0.62	4.90	0.11	10.25	22.10	1.86E-02	52.7	0.32	8.36E-04
MP2B	1	1	0.87	6.00	0.22	10.25	18.00	1.52E-02	43	0.52	1.39E-03
MP3B	1	1	1.13	6.10	0.41	15.64	17.71	1.49E-02	42.3	0.42	9.89E-04
MP4A	1	1	1.39	2.90	1.01	24.27	37.30	3.14E-02	89	0.89	1.31E-03
MP4B	1	1	1.13	2.90	0.47	24.27	37.30	3.14E-02	89	0.42	8.64E-04

Vapor extraction rate = 152 scfm

$u = 1.8E-5$  kg/m sec<sup>2</sup>

$P_{atm} = 14.35$  psi

$m = 12.69$  ft



**WURTSMITH AFB PILOT TESTING**  
**SITE SS08A**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**EFFECTIVE RADIUS METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1**

Assume: Steady state conditions ( $u < 0.01$ )  
 One dimensional flow

Equation: 
$$k_a = \frac{Q_v P^* \mu}{\pi b} \frac{\ln(r_e/r)}{P^2 - P_{atm}^2}$$

where:  $Q_v$  = volumetric flow rate ( $L^3/T$ )  
 $P^*$  = absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )  
 $P$  = absolute pressure at the observation well. ( $M/LT^2$ )  
 $P_{atm}$  = atmosphere pressure (absolute) dury test ( $M/LT^2$ )  
 $\mu$  = dynamic viscosity of soil gas ( $M/LT$ )  
 $\pi$  = 3.1415926  
 $b$  = Aquifer thickness (L)  
 $r_e$  = radius of pressure influence (L)  
 $r$  = Distance from VE1 to observation well (L)  
 $k_a$  = apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	152.00 scfm	=	0.071731 m <sup>3</sup> /sec
	$P_{atm}$ =	28.86 in Hg	=	97714.63 kg/m sec <sup>2</sup>
	$P^*$ diff =	19.20 in H <sub>2</sub> O	=	4780.67 kg/m sec <sup>2</sup>
at 46F	$\mu$ =	1.76E-05 kg/m sec		
	$b$ =	11.92 feet	=	3.633216 m
	$r_e$ =	54 feet	=	16.4592 m
	$r$ =	5.11 feet	=	1.557528 m
	$P$ diff =	8.12 in H <sub>2</sub> O	=	2021.825 kg/m sec <sup>2</sup>

Calculated:	$P^*$ =	92933.96 kg/m sec <sup>2</sup>		
	$P$ =	95692.8 kg/m sec <sup>2</sup>		
	$k_a$ =	6.2E-11 m <sup>2</sup>	=	62.75398 darcies
	$K_a$ =	3.474688 cm/sec		
	$K_w$ =	5.29E-02 cm/sec	=	149.9227 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08A**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**TWO WELL STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1-MP2**

Assume: Steady state conditions ( $u < 0.01$ )  
 One dimensional flow

Equation: 
$$k_a = \frac{Q_v P^* \mu}{\pi b} \frac{\ln(r_2/r_1)}{P_2^2 - P_1^2}$$

where:  $Q_v$  = volumetric flow rate ( $L^3/T$ )  
 $P^*$  = absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )  
 $\mu$  = dynamic viscosity of soil gas ( $M/LT$ )  
 $\pi$  = 3.1415926  
 $b$  = Aquifer thickness (L)  
 $r_1$  = distance to observation well no. 1 (L)  
 $r_2$  = distance to observation well no. 2 (L)  
 $P_1$  = absolute pressure at well no. 1 ( $M/LT^2$ )  
 $P_2$  = absolute pressure at well no. 2 ( $M/LT^2$ )  
 $k_a$  = apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	152.00 scfm	=	0.071731 m <sup>3</sup> /sec
	$P_{atm}$ =	28.86 in Hg	=	97714.63 kg/m sec <sup>2</sup>
	$P^*_{diff}$ =	19.20 in H <sub>2</sub> O	=	4780.67 kg/m sec <sup>2</sup>
at 46F	$\mu$ =	1.76E-05 kg/m sec		
	$b$ =	12.105 feet	=	3.689604 m
	$r_1$ =	5.11 feet	=	1.557528 m
	$r_2$ =	10.25 feet	=	3.1242 m
	$P_1$ diff =	8.12 in H <sub>2</sub> O	=	2021.825 kg/m sec <sup>2</sup>
	$P_2$ diff =	6.01 in H <sub>2</sub> O	=	1496.449 kg/m sec <sup>2</sup>

Calculated:	$P^*$ =	92933.96 kg/m sec <sup>2</sup>		
	$P_1$ =	95692.8 kg/m sec <sup>2</sup>		
	$P_2$ =	96218.18 kg/m sec <sup>2</sup>		
	$k_a$ =	6.99E-11 m <sup>2</sup>	=	70.75443 darcies
	$K_a$ =	3.917673 cm/sec		
	$K_w$ =	5.96E-02 cm/sec	=	169.0362 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08A**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**PSEUDO STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1-MP2**

Assume: steady state conditions  
One dimensional flow

Equation: 
$$k_a = \frac{Q_v \cdot \mu}{4 \pi b (P_2 - P_1)} \ln\left(\frac{r_2}{r_1}\right)$$

where:  $Q_v =$  volumetric flow rate ( $L^3/T$ )

$\mu =$  dynamic viscosity of soil gas (M/LT)

$\pi =$  3.1415926

$b =$  Aquifer thickness (L)

$r_1 =$  distance to observation well no. 1 (L)

$r_2 =$  distance to observation well no. 2 (L)

$P_1 =$  absolute pressure at well no. 1 (M/LT<sup>2</sup>)

$P_2 =$  absolute pressure at well no. 2 (M/LT<sup>2</sup>)

$k_a =$  apparent air permeability (L<sup>2</sup>)

Input:	$Q_v =$	152.00 scfm	=	0.071731 m <sup>3</sup> /sec
	$P_{atm} =$	28.86 in Hg	=	97714.63 kg/m sec <sup>2</sup>
Temp (F)				
46	$\mu =$	1.76E-05 kg/m sec		
	$b =$	12.105 feet	=	3.689604 m
	$r_1 =$	5.11 feet	=	1.557528 m
	$r_2 =$	10.25 feet	=	3.1242 m
	$P_1 \text{ diff} =$	8.12 in H <sub>2</sub> O	=	2021.825 kg/m sec <sup>2</sup>
	$P_2 \text{ diff} =$	6.01 in H <sub>2</sub> O	=	1496.449 kg/m sec <sup>2</sup>

Calculated:

$P_1 =$	95692.8 kg/m sec <sup>2</sup>		
$P_2 =$	96218.18 kg/m sec <sup>2</sup>		
$k_a =$	1.1E-11 m <sup>2</sup>	=	11.13439 darcies
$K_a =$	0.616511 cm/sec		
$K_w =$	9.38E-03 cm/sec	=	26.60067 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08A**  
**TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Transient Solution for One Dimensional Radial Flow  
 Soil Vapor Extraction Pilot Testing  
 Well MP1A

Assume: One dimensional flow

Equations:  $ka = \frac{Q_v u}{4 \pi b} \frac{W(u/B)}{(P - P_{atm})}$   $na = \frac{4 ka (P - P_{atm}) t u}{r^2 u}$   $B^2 = \frac{Kr m m'}{K'}$

where:

- $Q_v$  = volumetric flow rate ( $L^3/T$ )
- $P - P_{atm}$  = guage vacuum obtained at match point (H<sub>2</sub>O")
- $u$  = dynamic viscosity of soil gas (M/LT)
- $\pi$  = 3.1415926
- $b$  = vadose zone thickness (L)
- $(u, r/B)$  = leaky well function (obtained from type curve match point)
- $1/u$  = obtained from match point on type curve
- $t$  = time obtained from type curve match point
- $P_{atm}$  = absolute atmospheric pressure
- $ka$  = apparent air permeability ( $L^2$ )
- $Kr$  = vadose zone conductivity ( $L^2/T$ )
- $K'$  = surface seal conductivity ( $L^2/T$ )
- $r/B$  = type curve value
- $m$  = vadose zone thickness (L)
- $m'$  = surface seal thickness (L)

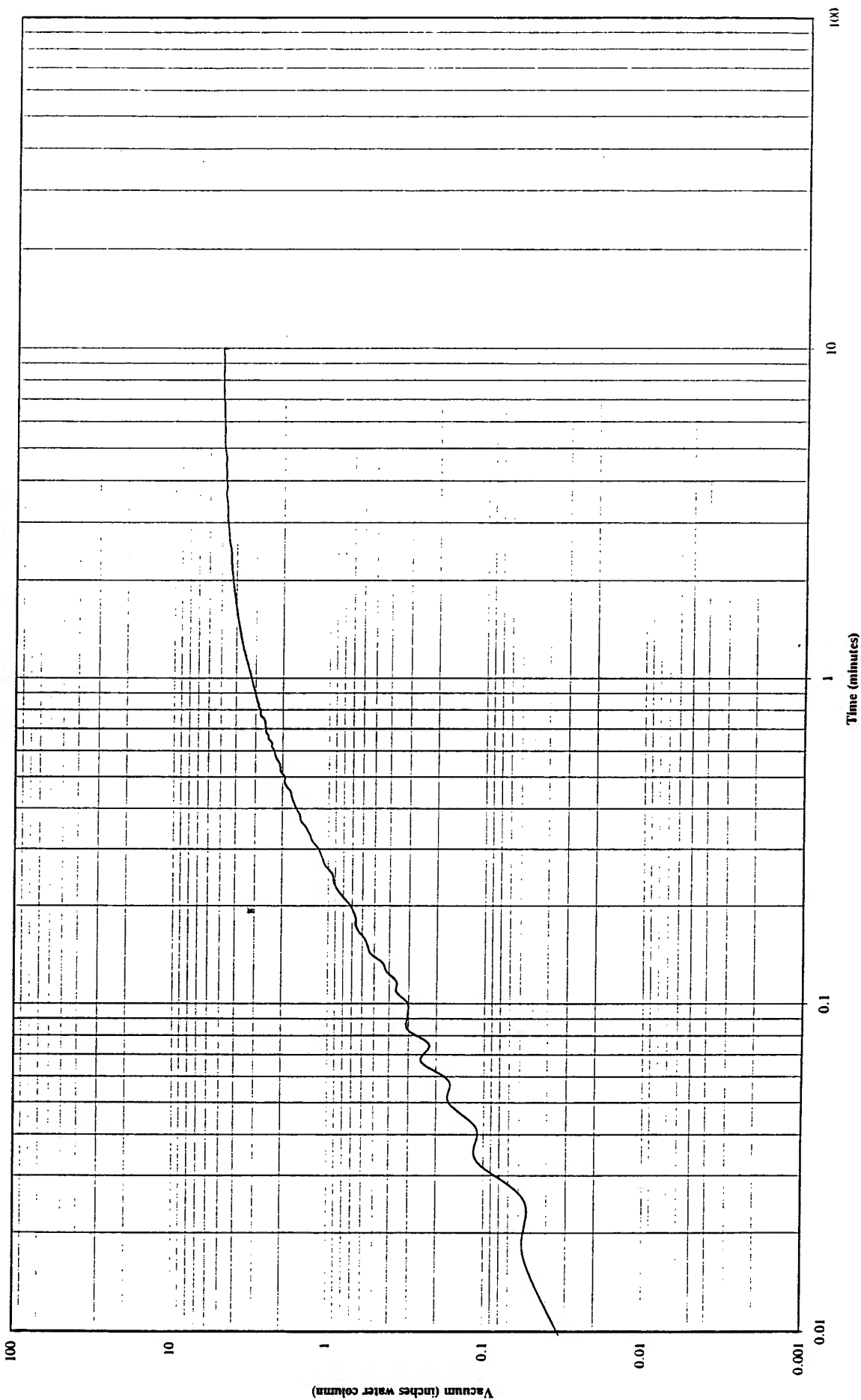
Input:

$Q_v$ =	152 scfm	=	0.071731 m <sup>3</sup> /sec
$(P - P_{atm})$ =	3.1 in H <sub>2</sub> O	=	771.9 kg/m sec <sup>2</sup>
$u$ =	1.80E-05 kg/m sec		
$b$ =	12.69 feet	=	3.867912 m
$W(u, r/B)$ =	1		
$u$ =	1		
$r/B$ =	0.62 (from matching curve)		
$t$ =	0.19 minutes	=	11.4 seconds
$P_{atm}$ =	14.35 psi	=	98907.38 kg/msec <sup>2</sup>
$r$ =	5.11 feet	=	1.55855 m
$m'$ =	1 feet	=	0.305 m

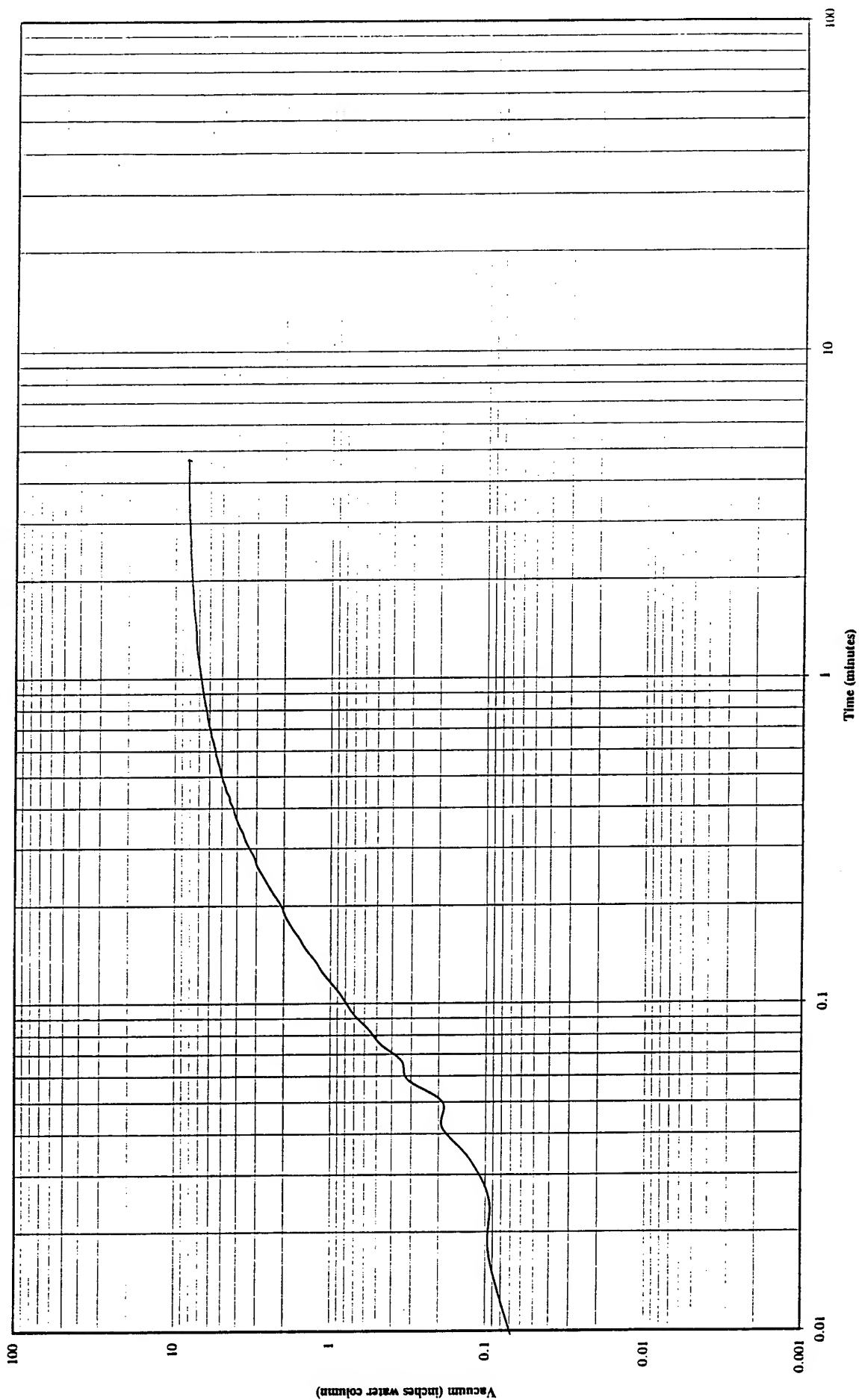
Calculated:

$ka$ =	3.44E-11 m <sup>2</sup>	=	34.86 darcies
$Ka$ =	1.93 cm/sec		
$Kw$ =	2.94E-02 cm/sec	=	83.27 ft/day
$na$ =	3.549843		
$B$ =	8.24		
$K'$ =	5.49E-03 cm/sec	=	15.56 ft/day

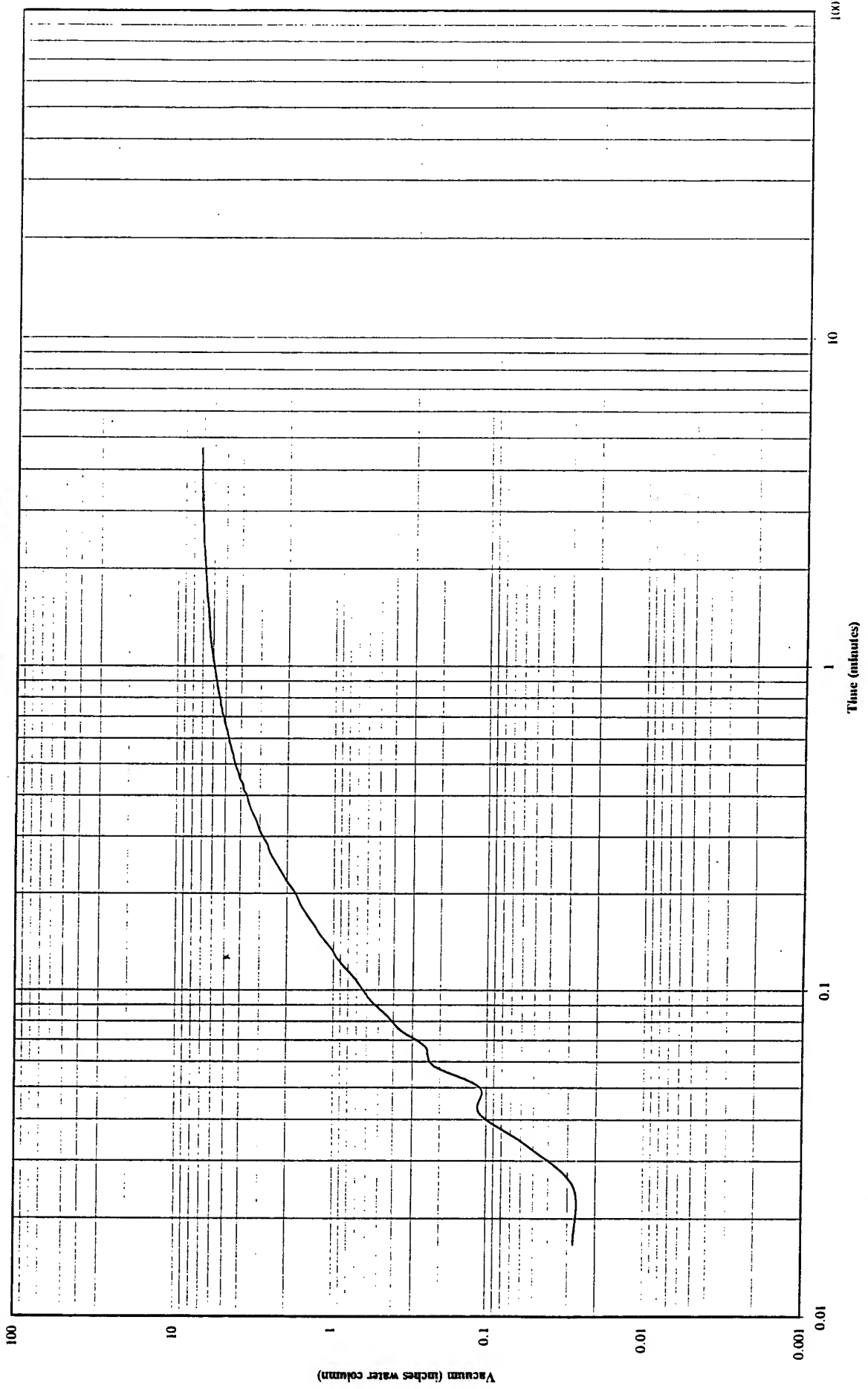
WURTSMITH AFB PILOT TESTING  
 SITE SS08A  
 WELL MP1A TRANSIENT DATA



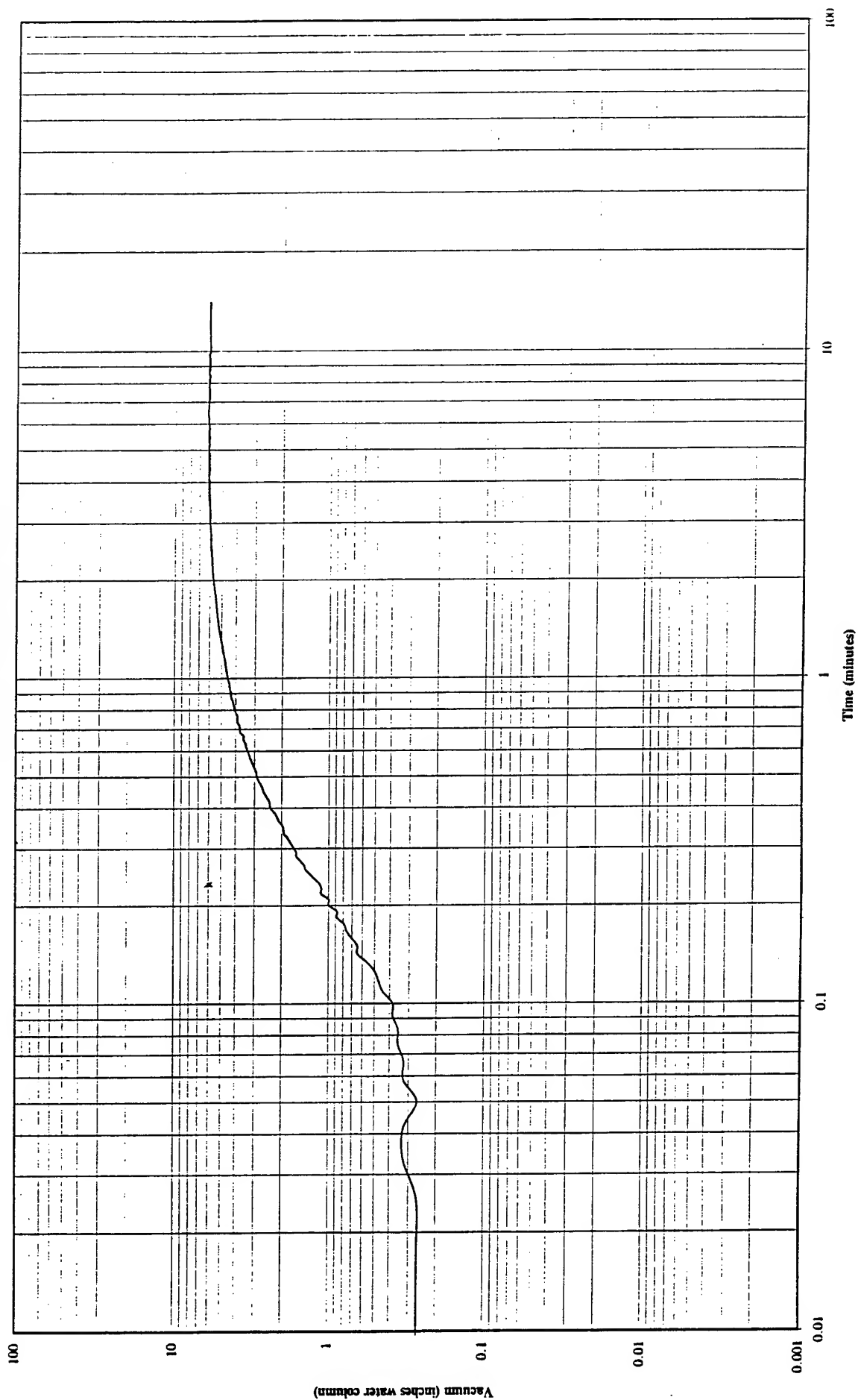
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 SITE SS08A  
 WELL MP1B TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
 SITE SS08A  
 WELL MP2A TRANSIENT DATA

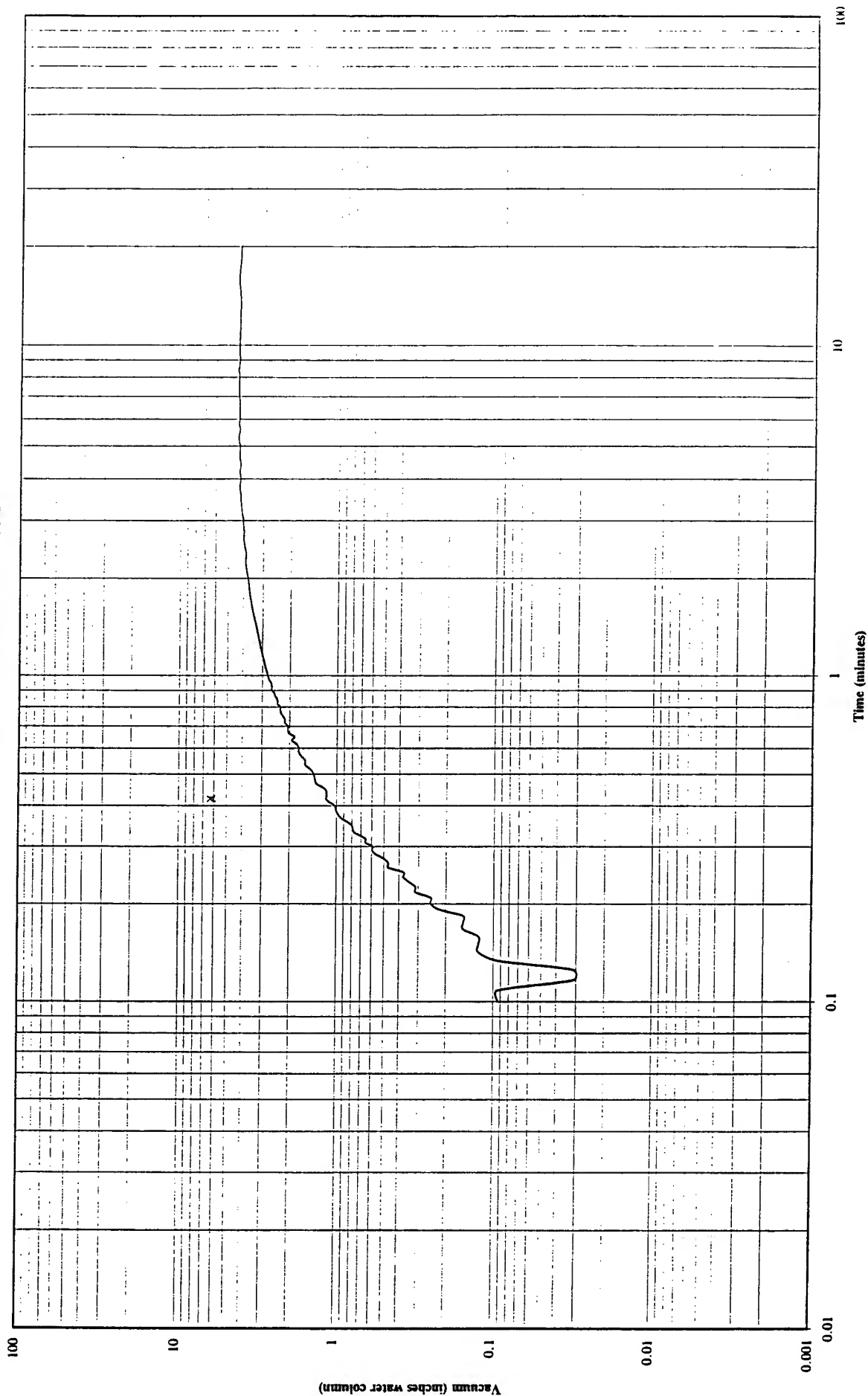


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SITE SS08A  
WELL MP2B TRANSIENT DATA

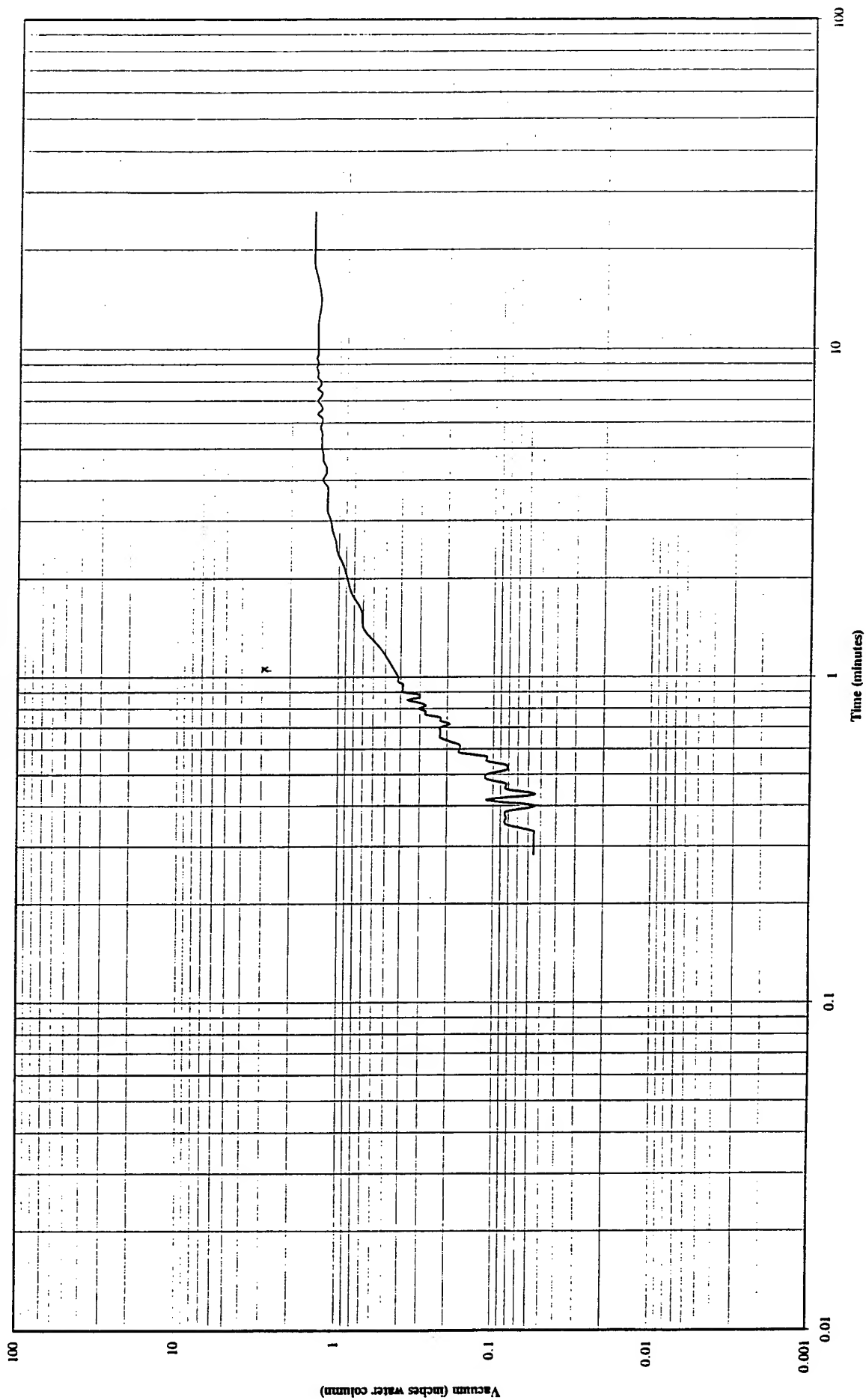




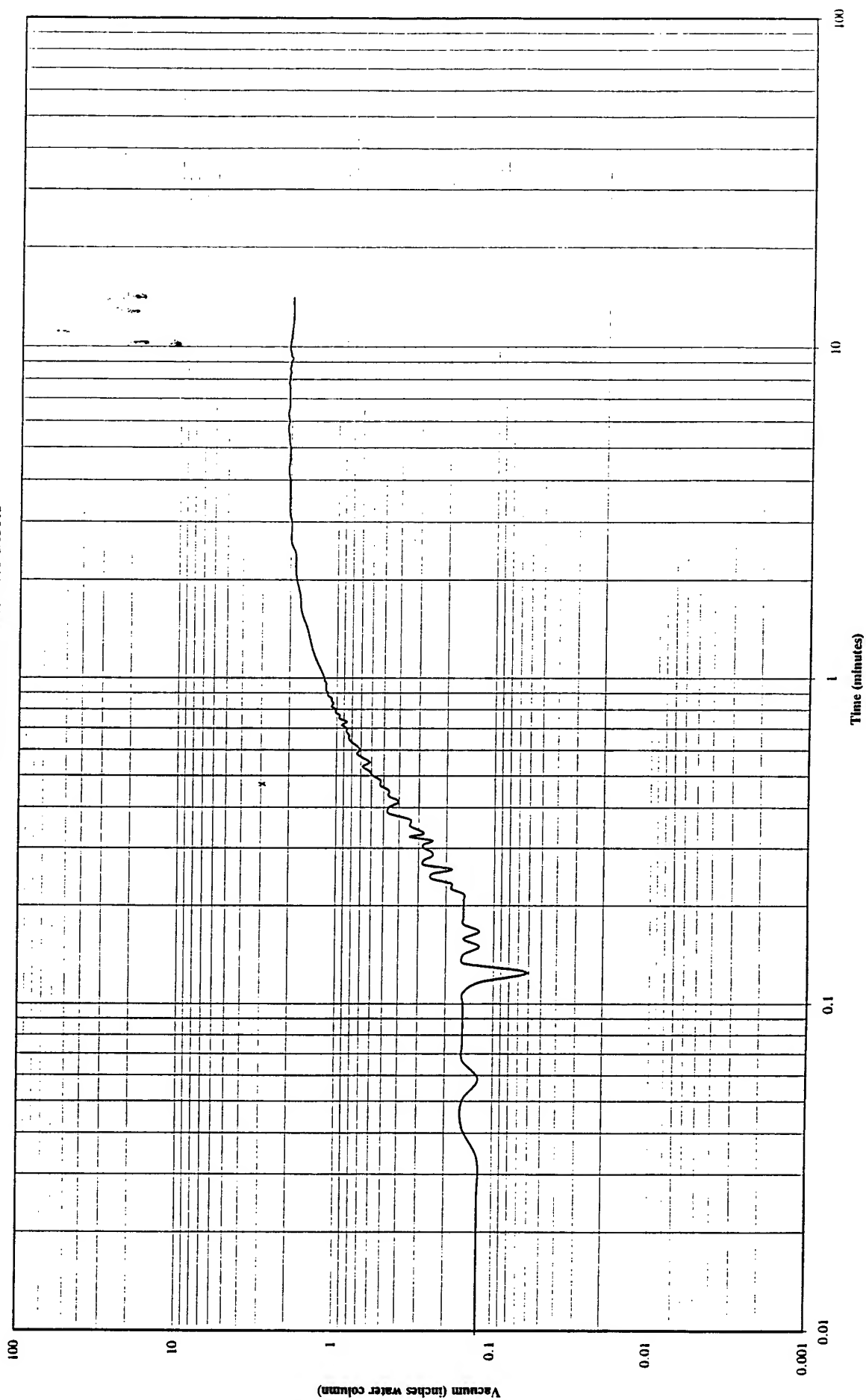
WURTSMITH AFB PILOT TESTING  
SITE SS08A  
WELL MP3B TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
 SITE SS08A  
 WELL MP4A TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
 SITE SS08A  
 WELL MP4B TRANSIENT DATA



WURTSMITH PILOT TESTING  
SITE SS08A  
VACUUM EXTRACTION STEP TEST  
November 25, 1997

STEP TEST (UP)

TIME	MP6 Vacuum (in H2O)	Flow Rate (scfm)
16:45	Start Step Test	
16:51	3.10	29.30
16:56	3.00	29.30
17:00	3.00	29.30
17:02	5.00	
17:03	5.10	44.80
17:05	5.00	42.90
17:07	5.10	43.30
17:09	7.50	
17:11	7.50	63.90
17:13	7.60	63.60
17:15	7.50	61.00
17:17	7.50	61.00
17:18	10.00	
17:19	10.00	79.50
17:21	10.10	79.90
17:23	12.50	
17:24	12.50	98.40
17:25	12.50	98.30
17:27	12.50	98.30
17:28	15.00	
17:36	15.10	120.40
17:37	15.10	119.60
17:39	15.10	118.90
17:40	17.50	
17:43	17.50	139.20
17:45	17.50	136.90
17:47	17.50	134.70
17:49	17.50	134.80
17:50	20.00	
17:52	20.00	153.10
17:54	20.00	152.00
17:57	20.00	152.10
17:59	20.00	152.10
18:00	22.50	
18:03	22.50	170.30
18:05	22.50	169.80
18:07	22.50	170.00

STEP TEST (DOWN)

TIME	MP6 Vacuum (in H2O)	Flow Rate (scfm)
18:12	20.00	
18:15	20.00	148.10
18:17	20.00	150.10
18:19	20.00	149.70
18:21	20.00	149.70
18:22	17.50	
18:24	17.50	128.50
18:26	17.50	131.20
18:28	17.50	131.60
18:30	17.50	131.20
18:32	15.00	
18:33	15.00	110.20
18:35	15.00	114.50
18:37	15.00	113.70
18:43	16.00	113.40
18:44	12.50	
18:47	12.50	95.00
18:49	12.50	95.00
18:51	12.50	95.00
18:52	10.00	
18:54	10.00	77.00
18:56	10.00	76.80
18:59	10.00	76.00
19:00	7.50	
19:01	7.50	55.40
19:03	7.50	57.70
19:05	7.50	57.70
19:06	5.00	
19:08	5.00	37.10
19:10	5.00	38.00
19:12	5.00	37.10
19:13	2.50	
19:14	2.50	22.30
19:16	2.50	20.70
19:18	2.50	20.70

End of Step Test

**WURTSMITH PILOT TESTING**  
**SITE SS08A**  
**VACUUM EXTRACTION STEP TEST**  
**November 25, 1997**

STEP TEST (UP)

TIME	MP6 Vacuum (in H2O)	Flow Rate (scfm)
16:45	Start Step Test	
16:51	3.10	29.30
16:56	3.00	29.30
17:00	3.00	29.30
17:02	5.00	
17:03	5.10	44.80
17:05	5.00	42.90
17:07	5.10	43.30
17:09	7.50	
17:11	7.50	63.90
17:13	7.60	63.60
17:15	7.50	61.00
17:17	7.50	61.00
17:18	10.00	
17:19	10.00	79.50
17:21	10.10	79.90
17:23	12.50	
17:24	12.50	98.40
17:25	12.50	98.30
17:27	12.50	98.30
17:28	15.00	
17:36	15.10	120.40
17:37	15.10	119.60
17:39	15.10	118.90
17:40	17.50	
17:43	17.50	139.20
17:45	17.50	136.90
17:47	17.50	134.70
17:49	17.50	134.80
17:50	20.00	
17:52	20.00	153.10
17:54	20.00	152.00
17:57	20.00	152.10
17:59	20.00	152.10
18:00	22.50	
18:03	22.50	170.30
18:05	22.50	169.80
18:07	22.50	170.00

STEP TEST (DOWN)

TIME	MP6 Vacuum (in H2O)	Flow Rate (scfm)
18:12	20.00	
18:15	20.00	148.10
18:17	20.00	150.10
18:19	20.00	149.70
18:21	20.00	149.70
18:22	17.50	
18:24	17.50	128.50
18:26	17.50	131.20
18:28	17.50	131.60
18:30	17.50	131.20
18:32	15.00	
18:33	15.00	110.20
18:35	15.00	114.50
18:37	15.00	113.70
18:43	16.00	113.40
18:44	12.50	
18:47	12.50	95.00
18:49	12.50	95.00
18:51	12.50	95.00
18:52	10.00	
18:54	10.00	77.00
18:56	10.00	76.80
18:59	10.00	76.00
19:00	7.50	
19:01	7.50	55.40
19:03	7.50	57.70
19:05	7.50	57.70
19:06	5.00	
19:08	5.00	37.10
19:10	5.00	38.00
19:12	5.00	37.10
19:13	2.50	
19:14	2.50	22.30
19:16	2.50	20.70
19:18	2.50	20.70

End of Step Test

**APPENDIX D**  
**PILOT TEST DATA AND ANALYSES FOR SITE SS-08B**

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL VAPOR EXTRACTION/AIR SPARGING SYSTEM DATA**

Date	12/2/97	12/2/97	12/3/97	12/3/97	12/4/97	12/4/97	12/5/97	12/5/97	12/5/97	12/6/97	12/7/97	12/7/97	12/8/97	12/8/97	12/9/97	12/9/97	12/10/97	12/10/97	12/11/97	12/11/97
Time	2145	2215	822	1410	1910	1125	1945	835	1610	1240	1030	1530	1000	1600	930	1500	1030	1600	1700	2300
MP1A ("H2O)	3.62	3.61	3.53	3.50	3.60	3.52		3.22	3.21	2.74	1.39	1.21	1.84	1.81	1.81	1.72	1.68	1.67	1.67	1.64
MP1B ("H2O)	5.19	5.06	4.89	4.88	4.95	4.81		3.61	3.66	1.68	1.40	1.30	2.42	2.32	2.34	1.91	1.82	1.84	1.91	1.91
MP2A ("H2O)	2.23	2.19	2.14	21.80	2.30	2.17		1.91	1.99	1.05	0.76	0.79	1.47	1.09	1.12	1.07	1.04	1.02	1.04	1.04
MP2B ("H2O)	2.72	2.63	2.55	2.59	2.54	2.50		2.23	2.29	1.25	0.88	0.89	1.38	1.89	1.32	1.23	1.22	1.22	1.23	1.22
MP3A ("H2O)	1.64	1.54	1.51	1.55	1.64	1.51		1.30	1.39	0.75	0.60	0.54	0.84	0.81	0.78	0.73	0.72	0.71	0.75	0.71
MP3B ("H2O)	1.82	1.71	1.67	1.70	1.81	1.69		1.49	1.48	0.78	0.66	0.58	0.93	0.89	0.87	0.81	0.79	0.83	0.83	0.75
MP4A ("H2O)	0.46	0.37	0.33	0.36	0.40	0.39		0.30	0.29	0.13	0.10	0.13	0.17	0.18	0.18	0.10	0.12	0.12	0.16	0.10
MP4B ("H2O)	0.55	0.46	0.41	0.45	0.50	0.46		0.37	0.36	0.15	0.13	0.16	0.21	0.23	0.23	0.12	0.16	0.16	0.21	0.15
MP5A ("H2O)	0.16	0.15	0.11	0.17	0.18	0.16		0.13	0.11	0.03	0.09	0.06	0.10	0.09	0.07	0.03	0.05	0.04	0.11	0.05
MP5B ("H2O)	0.21	0.20	0.16	0.20	0.23	0.19		0.18	0.15	0.07	0.10	0.08	0.12	0.11	0.09	0.08	0.07	0.06	0.14	0.70
MP6 ("H2O)	13.50	13.78	13.90	13.99	14.14	14.10		14.19	14.02	13.98	7.95	6.04	5.79	7.90	7.85	7.80	7.70	7.62	7.64	7.66
VE1 ("H2O)	15.54	15.90	15.98	16.15	16.30			16.44	16.22	16.22	8.91	6.80	6.60	8.87	8.84	8.85	8.70	8.67	8.65	8.68
Blower Vacuum ("H2O)	30*	30*	29.40	30.30	29.90	30.40		30.00	30.12	30.20	13.83	10.31	9.02	13.36	13.36	13.17	13.10	13.17	13.13	13.24
SVE Flow Rate (scfm)	175.10	174.75	173.59	172.83	171.17	171.14		170.96	171.74	170.91	105.21	92.33	86.98	105.39	108.61	105.92	109.23	107.41	108.11	109.61
Blower Pressure ("H2O)			11.40	10.52	10.53	10.45		10.43	10.45	10.95	4.45	3.40	2.81	4.50	4.52	4.45	4.45	4.45	4.47	4.46
Carbon Pressure ("H2O)	10.30	10.15	10.15	10.02	10.15	9.95		9.95	9.95	9.95	3.95	3.09	4.15	4.05	4.17	4.10	4.12	4.15	4.17	4.20
Sparge Pressure (psi)								12.3	7.8	7.0	8.7	9.7	10.0	13*	13.5*	17*	20*	23*	>30*	>30*
Sparge He %								1.90	1.80	1.80	1.60	1.80	1.80	1.80	1.80	1.80	1.60	1.60	1.70	2.10
VE Blower Temp (F)			29.0	30.0	29.0	29.0		29.0	27.5											
Sparge Temp (F)								128	124	114	110	112	120	120	114	122	112	112	120	118
Extracted Vapor Temp (F)	45.0	45.0	45.0	45.0	44.0	43.5				42.8	42.8	41.0	41.0	42.8	41.0	41.0	42.8	42.8	64.4*	59*
Sparge Flow Rate (cfm)								15.00	-	-	15.50	15.50	15.00	14.50	15.00	15.00	15.00	15.00	13.00	13.00
Helium Flow Rate (units)								130.00	130.00	130.00	128.00	125.00	125.00	130.00	130.00	130.00	130.00	130.00	140.00	135.00
SF6 Flow Rate (units)								40.00	40.00	40.00	40.00	40.00	11.00	38.00	37.00	25.00	40.00	40.00	80.00	80.00
Helium Pressure (psi)										400.00	2200.00	750.00	600.00	1300.00	1100.00	500.00	400.00	1700.00	750.00	550.00
SF6 Pressure (psi)										150.00	145.00	40.00	0.00	150.00	180.00	180.00	180.00	175.00	120.00	110.00
Sparge On Pulse								10	10	10	10	10	5	5	5	5	5	5	5	5
Sparge Off Pulse								0	0	0	0	0	5	5	5	5	5	5	5	5
Pre-Carbon PID (ppm)	3.30	3.40	0.1-0	1.0-3.2	~1.0	-		1.60	1.20											
Post-Carbon PID (ppm)	0.00	0.00	0.00	0.00	0.00	-		0.00	0.00											
Ambient Temperature								30° F	30° F	30° F	30° F	25° F	30° F	35° F	28° F	32° F	32° F	32° F	25° F	23° F
Weather Conditions								Clear	Clear	Windy	Snow	Clear to Cloudy	Clear to Cloudy	Cloudy	Clear	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Ground Cover					Rain	Wet		Sl. snow	None	None	None	None	None	None	None	None	None	None	None	None

Constant rate vapor extraction began on 12/2/97 at 21:35.  
Constant rate air sparging began on 12/4/97 at 16:00.  
Vapor extraction rate decreased on 12/6/97 at 11:30.  
Pulsed rate sparging started on 12/7/97 at 15:30 (50% on 50% off).  
Vapor extraction and air sparging ended on 12/11/97 at 2330.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**EFFECTIVE RADIUS METHOD**

SS08Beq1		n or b (ft)	P <sub>atm</sub> (psi)	Q <sub>v</sub> (scfm)	P <sub>atm</sub> -P* (in. H <sub>2</sub> O)	P <sub>atm</sub> -P (ft H <sub>2</sub> O)	r (ft)	r <sub>c</sub> (ft)	μ (kg/m.sec)	Air temp. °F	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1		15	14.25	175.2	13.8	4.21	3.98	44	1.76E-05	45	1.12E-10	113.8	6.30	0.10	271.94
MP2		15	14.25	175.2	13.8	2.15	9.71	44	1.76E-05	45	1.38E-10	139.8	7.74	0.12	333.98
MP3		15	14.25	175.2	13.8	1.59	14.82	44	1.76E-05	45	1.34E-10	136.0	7.53	0.11	325.01
MP4		15	14.25	175.2	13.8	0.37	27.16	44	1.76E-05	45	2.55E-10	258.8	14.33	0.22	618.23
MP5		15	14.25	175.2	13.8	0.14	38.91	44	1.76E-05	45	1.72E-10	174.2	9.65	0.15	416.23



WURTSMITH AFB PILOT TESTING  
SITE SS08B  
STEADY STATE SOIL PERMEABILITY CALCULATIONS  
TWO WELL METHOD

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (ft)	r <sub>2</sub> (ft)	P <sub>am</sub> -P* (in. H <sub>2</sub> O)	Q <sub>v</sub> (scfm)	μ (kg/m.sec)	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	4.21	2.15	3.98	9.71	13.8	175	1.76E-05	86.6	4.79	7.30E-02	2.07E+02
MP1-MP3	4.21	1.59	3.98	14.82	13.8	175	1.76E-05	68.0	3.77	5.73E-02	1.63E+02
MP1-MP4	4.21	0.37	3.98	27.16	13.8	175	1.76E-05	99.8	5.53	8.41E-02	2.38E+02
MP1-MP5	4.21	0.14	3.98	38.91	13.8	175	1.76E-05	111.7	6.19	9.42E-02	2.67E+02
MP2-MP3	2.15	1.59	9.71	14.82	13.8	175	1.76E-05	150.5	8.33	1.27E-01	3.60E+02
MP2-MP4	2.15	0.37	9.71	27.16	13.8	175	1.76E-05	115.0	6.37	9.69E-02	2.75E+02
MP2-MP5	2.15	0.14	9.71	38.91	13.8	175	1.76E-05	137.4	7.61	1.16E-01	3.28E+02
MP3-MP4	1.59	0.37	14.82	27.16	13.8	175	1.76E-05	98.7	5.47	8.32E-02	2.36E+02
MP3-MP5	1.59	0.14	14.82	38.91	13.8	175	1.76E-05	132.3	7.33	1.12E-01	3.16E+02
MP4-MP5	0.37	0.14	27.16	38.91	13.8	175	1.76E-05	310.3	17.18	2.61E-01	7.41E+02

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**PSEUDO STEADY STATE METHOD**

Observation Well Pair	Steady State Vacuum at Well 1	Steady State Vacuum at Well 2	r <sub>1</sub> (m)	r <sub>2</sub> (m)	Q <sub>v</sub> (m <sup>3</sup> /min)	μ (kg/m.sec)	k <sub>a</sub> (m <sup>2</sup> )	k <sub>a</sub> (darcies)	K <sub>a</sub> (cm/sec)	K <sub>w</sub> (cm/sec)	K <sub>w</sub> (ft/day)
MP1-MP2	4.21	2.15	1.21	2.96	4.96	1.76E-05	1.34E-11	13.56	0.75	6.33E-04	1.79
MP1-MP3	4.21	1.59	1.21	4.52	4.96	1.76E-05	1.55E-11	15.72	0.87	7.34E-04	2.08
MP1-MP4	4.21	0.37	1.21	8.28	4.96	1.76E-05	1.55E-11	15.67	0.87	7.31E-04	2.07
MP1-MP5	4.21	0.14	1.21	11.86	4.96	1.76E-05	1.73E-11	17.55	0.97	8.19E-04	2.32
MP2-MP3	2.15	1.59	2.96	4.52	4.96	1.76E-05	2.34E-11	23.65	1.31	1.10E-03	3.13
MP2-MP4	2.15	0.37	2.96	8.28	4.96	1.76E-05	1.79E-11	18.10	1.00	8.45E-04	2.39
MP2-MP5	2.15	0.14	2.96	11.86	4.96	1.76E-05	2.41E-11	24.43	1.35	1.14E-03	3.23
MP3-MP4	1.59	0.37	4.52	8.28	4.96	1.76E-05	1.54E-11	15.56	0.86	7.26E-04	2.06
MP3-MP5	1.59	0.14	4.52	11.86	4.96	1.76E-05	2.06E-11	20.86	1.15	9.73E-04	2.76
MP4-MP5	0.37	0.14	8.28	11.86	4.96	1.76E-05	4.83E-11	48.97	2.71	2.28E-03	6.48

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Well	$W(u, r/B)$	$1/u$	$r/B$	Vacuum (match point)	Time (match point)	$r$ (ft)	$Ka$ (darcies)	$Kw$ (cm/sec)	$Kw$ (ft/day)	$na$	$K'w$ (cm/sec)
MP1A	1	1	0.62	3.1	0.011	5.11	40.10	3.38E-02	95.80	0.24	7.46E-03
MP1B	1	1	0.62	4.3	0.013	5.11	28.90	2.44E-02	69.00	0.2	5.38E-03
MP2B	1	1	1.91	11.0	0.120	10.25	11.30	9.52E-03	27.00	0.18	4.96E-03
MP3A	1	1	1.65	5.6	0.165	15.64	22.20	1.87E-02	53.00	0.21	3.12E-03
MP3B	1	1	1.91	8.5	0.190	15.64	14.60	1.23E-02	34.90	0.16	2.76E-03
MP4A	1	1	3.19	8.1	0.730	24.27	15.30	1.29E-02	36.70	0.27	3.35E-03
MP4B	1	1	3.19	10.5	0.730	24.27	11.80	9.97E-03	28.30	0.21	2.58E-03

Air injection rate = 206.6 scfm

$u = 1.8E-5$  kg/m sec<sup>2</sup>

Patm = 14.35 psi

m = 15 feet

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**EFFECTIVE RADIUS METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1**

Assume: Steady state conditions ( $u < 0.01$ )  
 One dimensional flow

Equation: 
$$k_a = \frac{Q_v P^* \mu}{\pi b} \frac{\ln(r_e/r)}{P^2 - P_{atm}^2}$$

where:

- $Q_v$  = volumetric flow rate ( $L^3/T$ )
- $P^*$  = absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )
- $P$  = absolute pressure at the observation well. ( $M/LT^2$ )
- $P_{atm}$  = atmosphere pressure (absolute) dury test ( $M/LT^2$ )
- $\mu$  = dynamic viscosity of soil gas ( $M/LT$ )
- $\pi$  = 3.1415926
- $b$  = Aquifer thickness (L)
- $r_e$  = radius of pressure influence (L)
- $r$  = Distance from VE1 to observation well (L)
- $k_a$  = apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	175.20 scfm	=	0.082679 m <sup>3</sup> /sec
	$P_{atm}$ =	29.03 in Hg	=	98266.3 kg/m sec <sup>2</sup>
	$P^*$ diff =	13.80 in H <sub>2</sub> O	=	3436.107 kg/m sec <sup>2</sup>
at 46F	$u$ =	1.76E-05 kg/m sec		
	$b$ =	15 feet	=	4.572 m
	$r_e$ =	44 feet	=	13.4112 m
	$r$ =	3.98 feet	=	1.213104 m
	$P$ diff =	4.21 in H <sub>2</sub> O	=	1048.262 kg/m sec <sup>2</sup>

Calculated:	$P^*$ =	94830.19 kg/m sec <sup>2</sup>		
	$P$ =	97218.04 kg/m sec <sup>2</sup>		
	$k_a$ =	1.12E-10 m <sup>2</sup>	=	113.8281 darcies
	$K_a$ =	6.302663 cm/sec		
	$K_w$ =	9.59E-02 cm/sec	=	271.9416 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**TWO WELL STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2

**MP1-MP2**

Assume:    Steady state conditions ( $u < 0.01$ )  
              One dimensional flow

Equation:             $k_a = \frac{Q_v P^* \mu}{\pi b} \frac{\ln(r_2/r_1)}{P_2^2 - P_1^2}$

where:     $Q_v$  =        volumetric flow rate ( $L^3/T$ )  
               $P^*$  =        absolute pressure at the point of flow measurement, adjusted for well loss ( $M/LT^2$ )  
               $\mu$  =        dynamic viscosity of soil gas ( $M/LT$ )  
               $\pi$  =        3.1415926  
               $b$  =        Aquifer thickness (L)  
               $r_1$  =        distance to observation well no. 1 (L)  
               $r_2$  =        distance to observation well no. 2 (L)  
               $P_1$  =        absolute pressure at well no. 1 ( $M/LT^2$ )  
               $P_2$  =        absolute pressure at well no. 2 ( $M/LT^2$ )  
               $k_a$  =        apparent air permeability ( $L^2$ )

Input:	$Q_v$ =	175.20 scfm	=	0.082679 m <sup>3</sup> /sec	
	$P_{atm}$ =	29.03 in Hg	=	98266.3 kg/m sec <sup>2</sup>	
	$P^*_{diff}$ =	13.80 in H <sub>2</sub> O	=	3436.107 kg/m sec <sup>2</sup>	
	at 46F	$\mu$ =	1.76E-05 kg/m sec		
		$b$ =	15 feet	=	4.572 m
	$r_1$ =	3.98 feet	=	1.213104 m	
	$r_2$ =	9.71 feet	=	2.959608 m	
	$P_1$ diff =	4.21 in H <sub>2</sub> O	=	1048.262 kg/m sec <sup>2</sup>	
	$P_2$ diff =	2.15 in H <sub>2</sub> O	=	535.3355 kg/m sec <sup>2</sup>	

Calculated:	$P^*$ =	94830.19 kg/m sec <sup>2</sup>		
	$P_1$ =	97218.04 kg/m sec <sup>2</sup>		
	$P_2$ =	97730.96 kg/m sec <sup>2</sup>		
	$k_a$ =	8.55E-11 m <sup>2</sup>	=	86.58088 darcies
	$K_a$ =	4.793983 cm/sec		
	$K_w$ =	7.30E-02 cm/sec	=	206.8464 ft/day

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**STEADY STATE SOIL PERMEABILITY CALCULATIONS**  
**PSEUDO STEADY STATE METHOD**

Steady State Solution for One Dimensional Radial Flow

Soil Vapor Extraction Pilot Testing

Theoretical basis for these calculations is provided in USACE Soil Vapor Extraction and Bioventing Manual, Chapter 2  
**MP1-MP2**

Assume: steady state conditions  
One dimensional flow

Equation: 
$$k_a = \frac{Q_v \mu}{4 \pi b} \frac{\ln(r_2/r_1)}{P_2 - P_1}$$

where:  $Q_v =$  volumetric flow rate ( $L^3/T$ )

$\mu =$  dynamic viscosity of soil gas ( $M/LT$ )

$\pi =$  3.1415926

$b =$  Aquifer thickness ( $L$ )

$r_1 =$  distance to observation well no. 1 ( $L$ )

$r_2 =$  distance to observation well no. 2 ( $L$ )

$P_1 =$  absolute pressure at well no. 1 ( $M/LT^2$ )

$P_2 =$  absolute pressure at well no. 2 ( $M/LT^2$ )

$k_a =$  apparent air permeability ( $L^2$ )

Input:	$Q_v =$	175.20 scfm	=	0.082679 $m^3/sec$
	$P_{atm} =$	29.03 in Hg	=	98266.3 $kg/m \ sec^2$
Temp (F)				
45	$\mu =$	1.76E-05 $kg/m \ sec$		
	$b =$	15 feet	=	4.572 m
	$r_1 =$	3.98 feet	=	1.213104 m
	$r_2 =$	9.71 feet	=	2.959608 m
	$P_1 \text{ diff} =$	4.21 in $H_2O$	=	1048.262 $kg/m \ sec^2$
	$P_2 \text{ diff} =$	2.15 in $H_2O$	=	535.3355 $kg/m \ sec^2$

Calculated:

$P_1 =$	97218.04 $kg/m \ sec^2$	
$P_2 =$	97730.96 $kg/m \ sec^2$	
$k_a =$	1.34E-11 $m^2$	= 13.56388 darcies
$K_a =$	0.751032 $cm/sec$	
$K_w =$	1.14E-02 $cm/sec$	= 32.40485 $ft/day$

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**TRANSIENT TEST CALCULATIONS BASED ON TYPE CURVE MATCHES**

Transient Solution for One Dimensional Radial Flow  
 Soil Vapor Extraction Pilot Testing  
 MP1A

Assume: One dimensional flow

Equations:  $ka = \frac{Q_v u}{4 \pi b} \frac{W(u/B)}{(P - Patm)}$   $na = \frac{4 ka (P - Patm) t u}{r^2 u}$   $B^2 = \frac{Kr m m'}{K'}$

where:

- $Q_v$  = volumetric flow rate ( $L^3/T$ )
- $P - Patm$  = guage vacuum obtained at match point ( $H_2O''$ )
- $u$  = dynamic viscosity of soil gas ( $M/LT$ )
- $\pi$  = 3.1415926
- $b$  = vadose zone thickness ( $L$ )
- $(u, r/B)$  = leaky well function (obtained from type curve match point)
- $1/u$  = obtained from match point on type curve
- $t$  = time obtained from type curve match point
- $Patm$  = absolute atmospheric pressure
- $ka$  = apparent air permeability ( $L^2$ )
- $Kr$  = vadose zone conductivity ( $L^2/T$ )
- $K'$  = surface seal conductivity ( $L^2/T$ )
- $r/B$  = type curve value
- $m$  = vadose zone thickness ( $L$ )
- $m'$  = surface seal thickness ( $L$ )

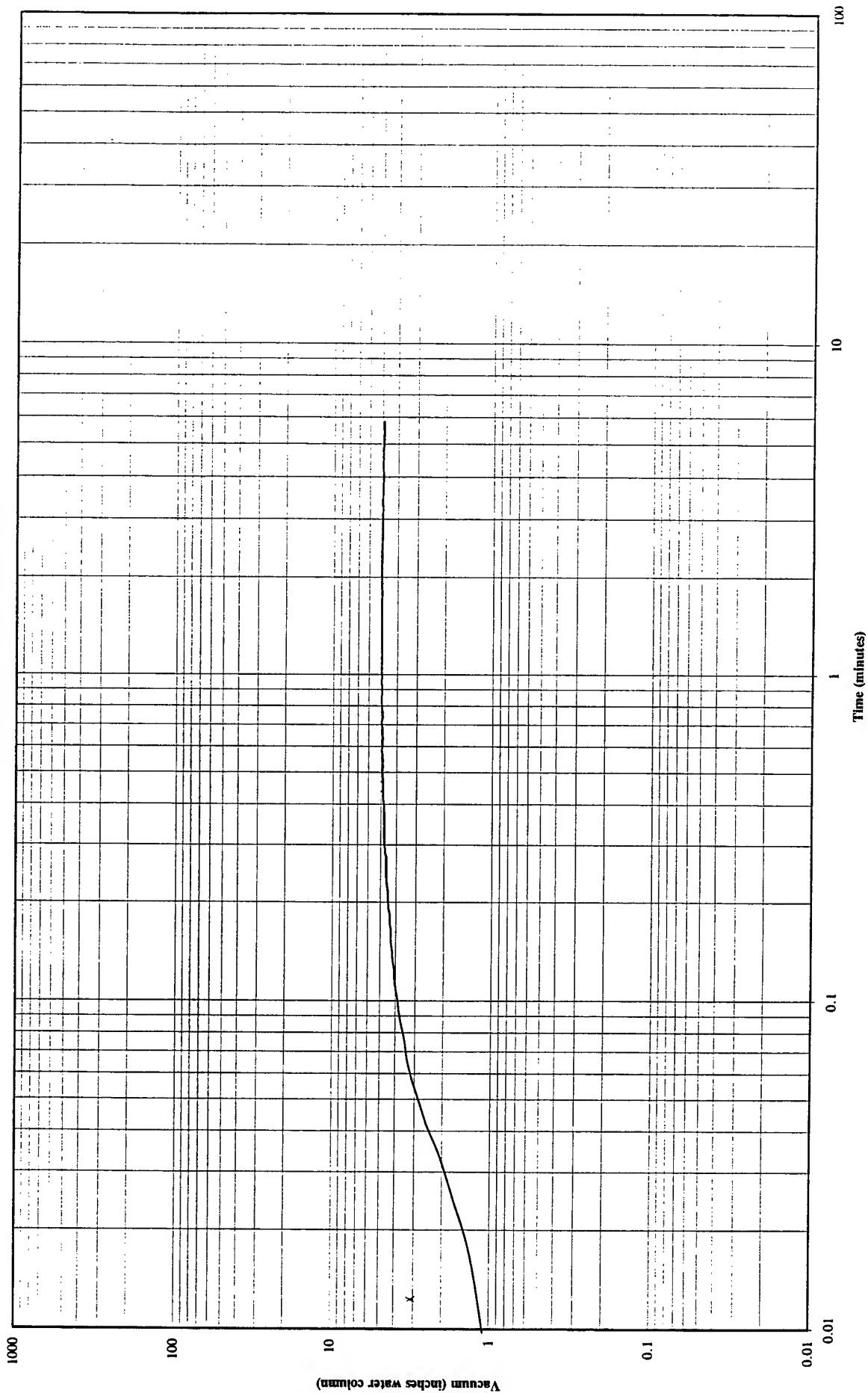
Input:

$Q_v$ =	206.6 scfm	=	0.097497 $m^3/sec$
$(P - Patm)$ =	3.1 in $H_2O$	=	771.9 $kg/m \ sec^2$
$u$ =	1.80E-05 $kg/m \ sec$		
$b$ =	15 feet	=	4.572 m
$W(u, r/B)$ =	1		
$u$ =	1		
$r/B$ =	0.62 (from matching curve)		
$t$ =	0.011 minutes	=	0.66 seconds
$Patm$ =	14.35 psi	=	98907.38 $kg/msec^2$
$r$ =	5.11 feet	=	1.55855 m
$m'$ =	1 feet	=	0.305 m

Calculated:

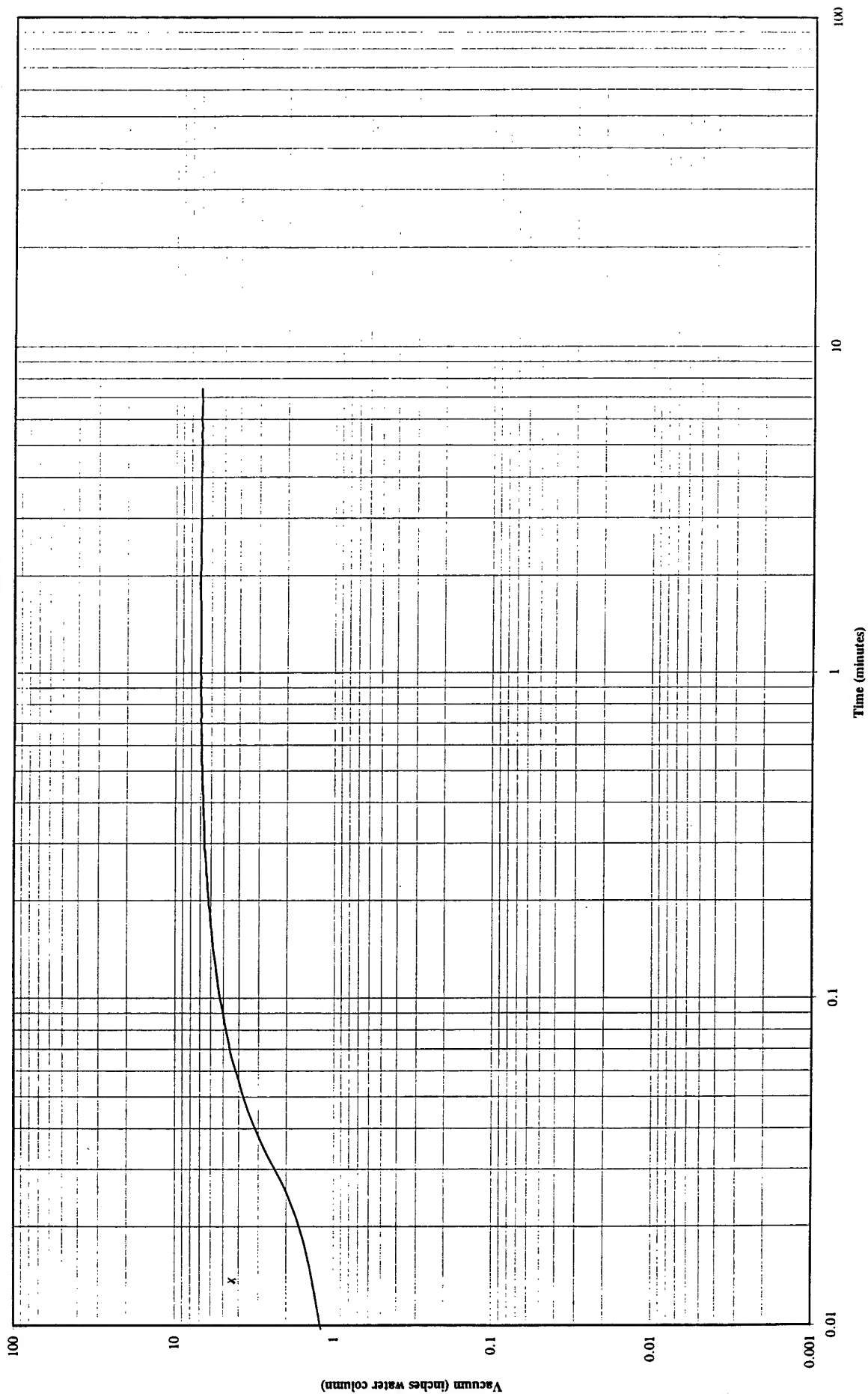
$ka$ =	3.96E-11 $m^2$	=	40.08 darcies
$Ka$ =	2.22 $cm/sec$		
$Kw$ =	3.38E-02 $cm/sec$	=	95.75 $ft/day$
$na$ =	0.236323		
$B$ =	8.24		
$K'$ =	7.46E-03 $cm/sec$	=	21.14 $ft/day$

WURTSMITH AFB PILOT TESTING  
 SITE SS08B  
 WELL MP1A TRANSIENT DATA

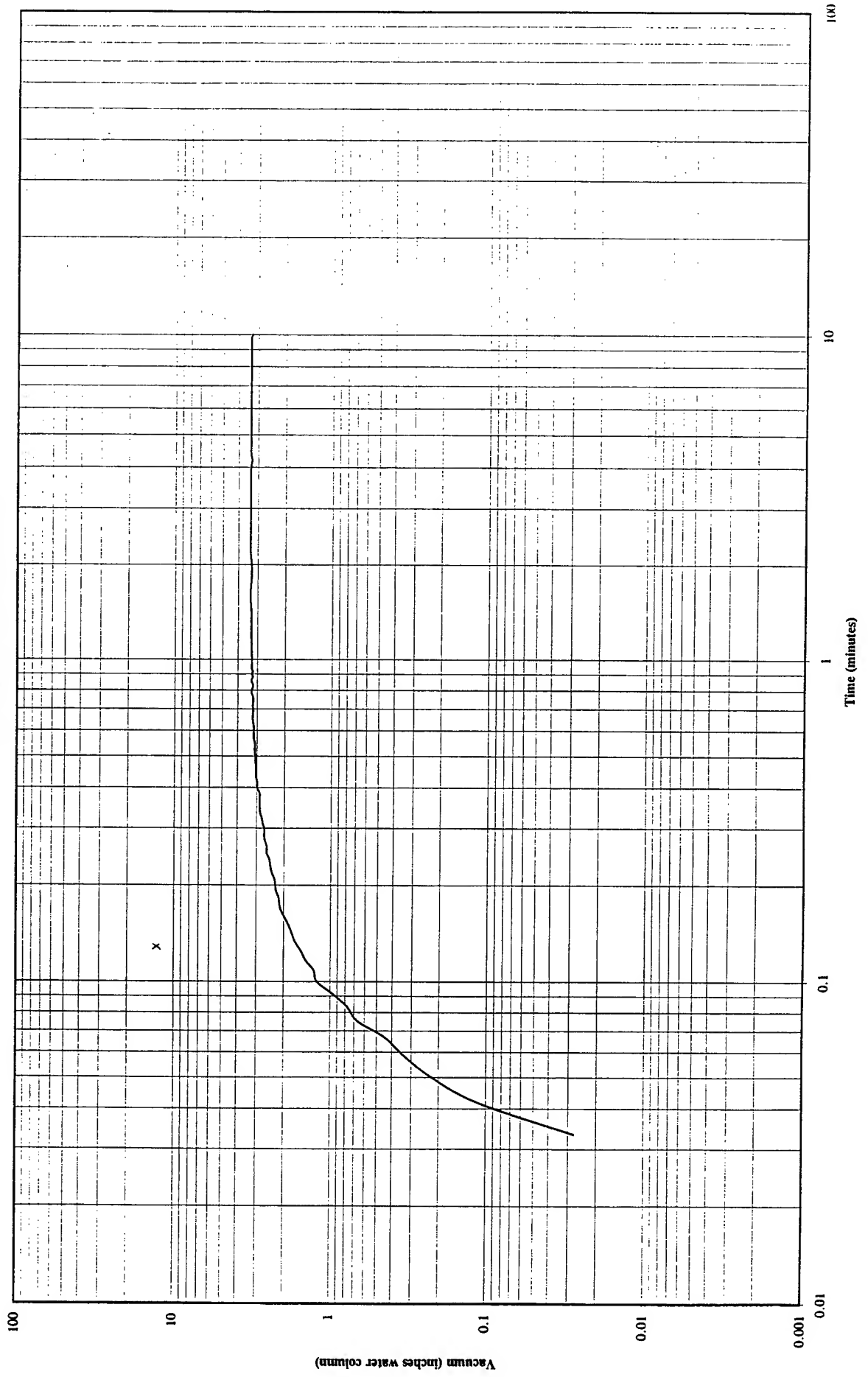




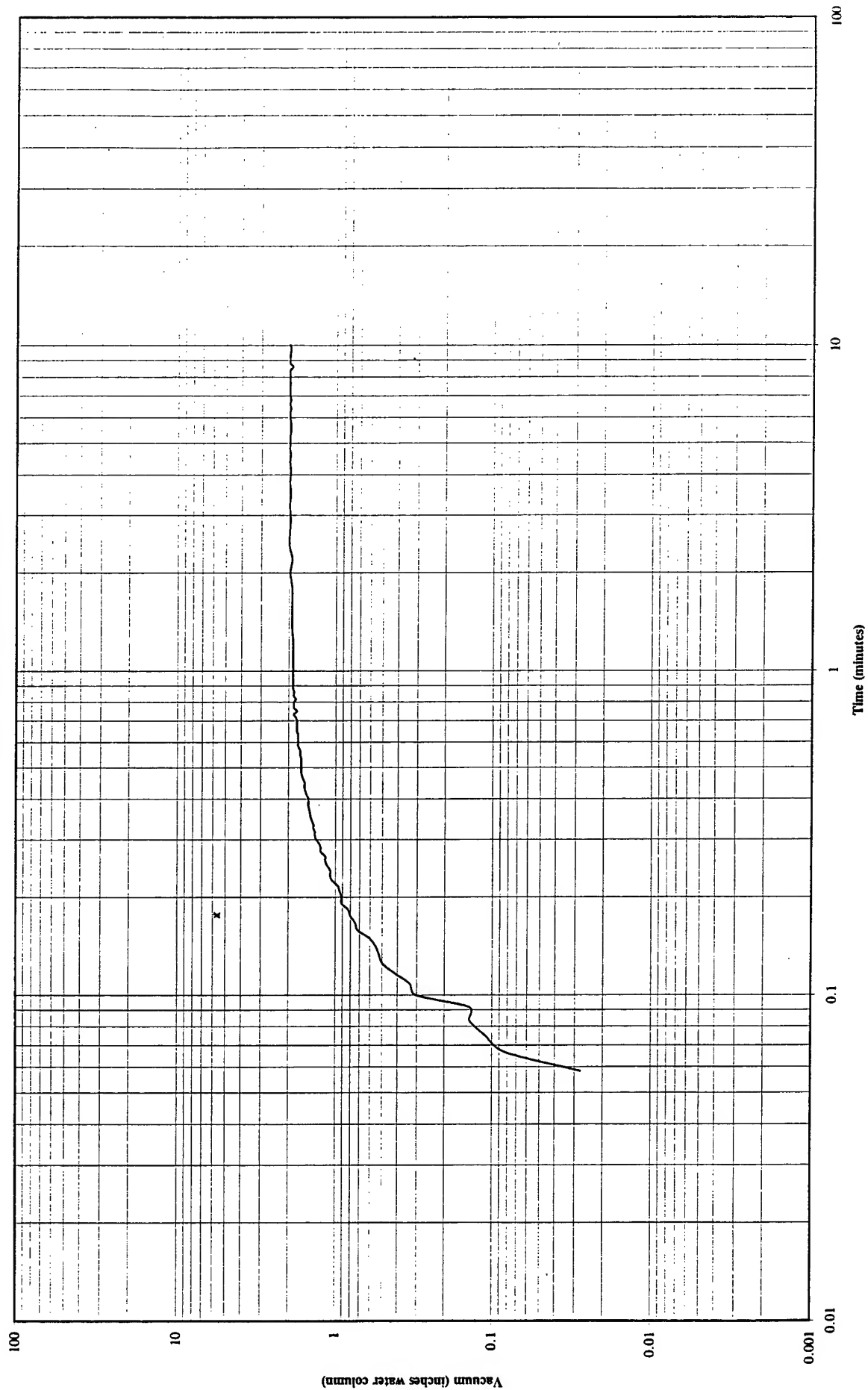
WURTSMITH AFB PILOT TESTING  
 SITE SS08B  
 WELL MP1B TRANSIENT DATA



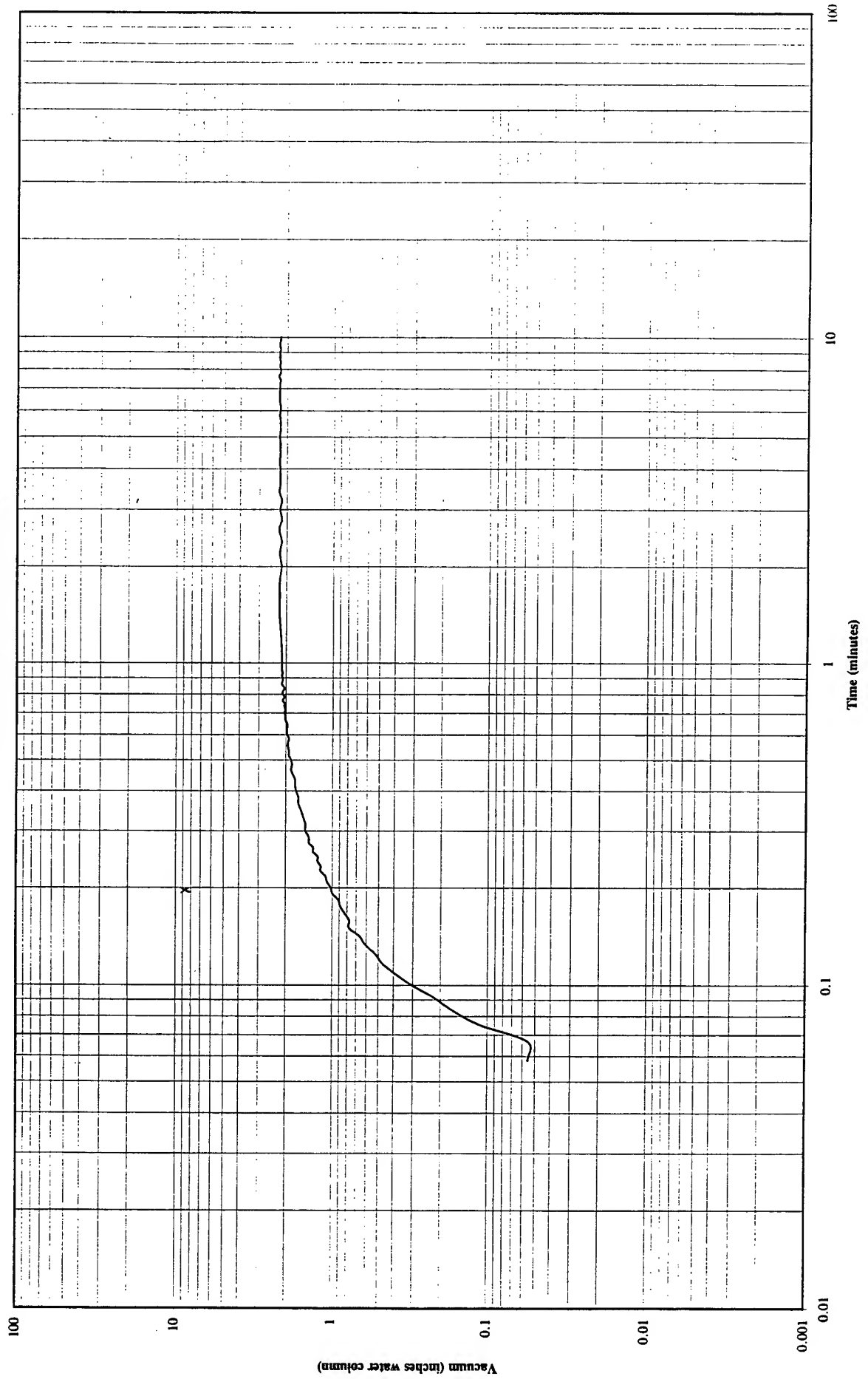
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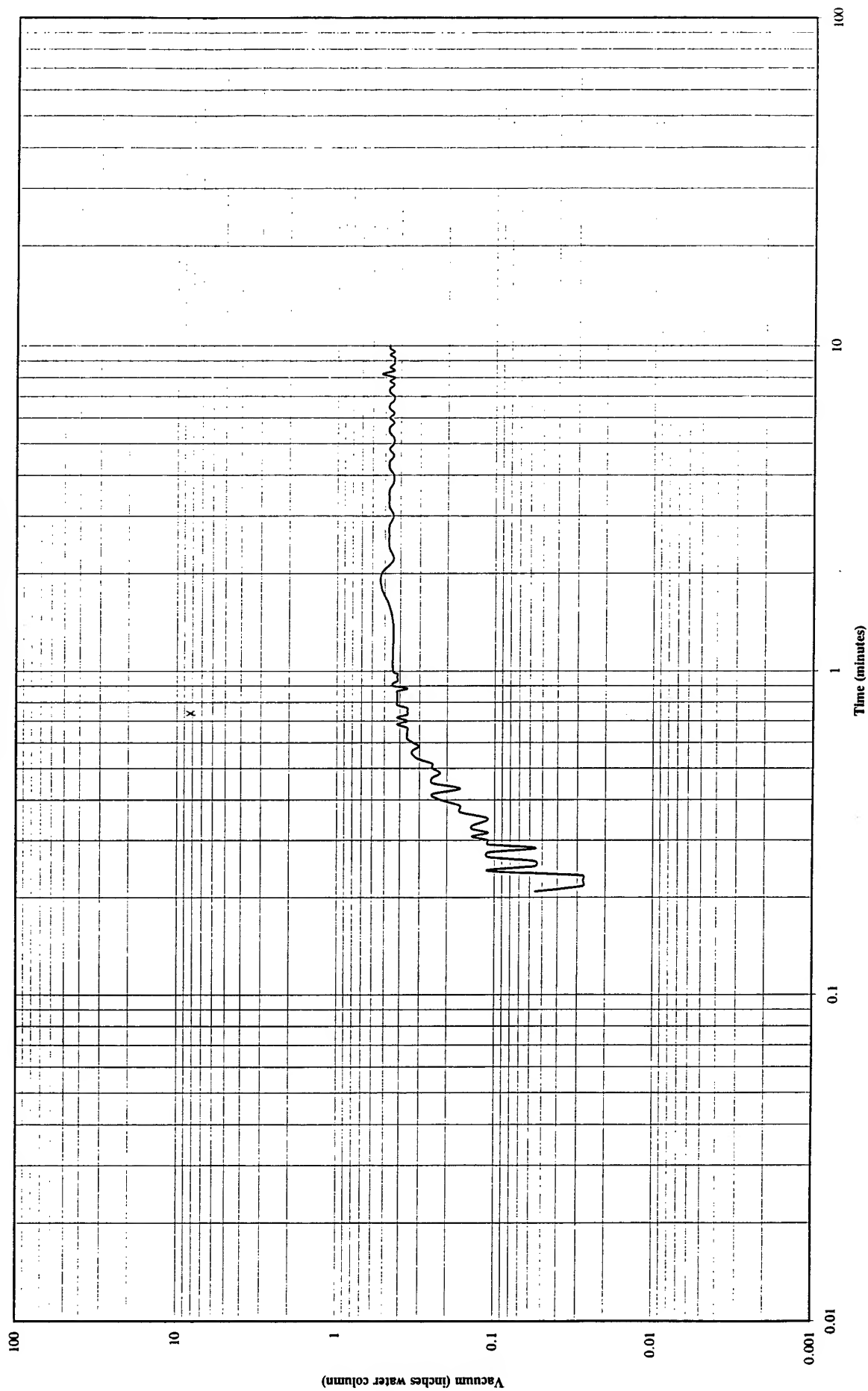
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 SITE SS08B  
 WELL MP3A TRANSIENT DATA



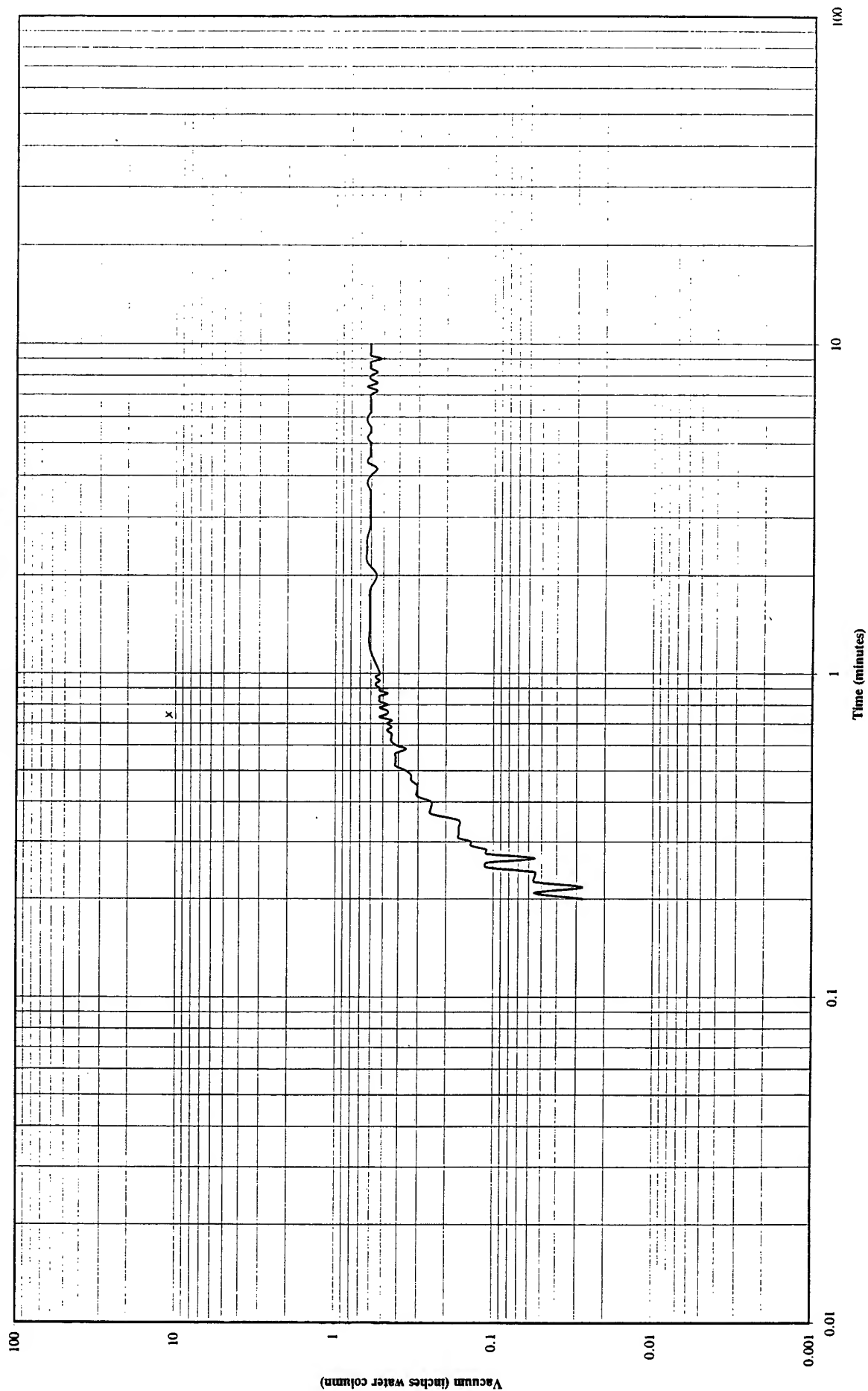
WURTSMITH AFB PILOT TESTING  
SITE SS08B  
WELL MP3B TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
SITE SS08B  
WELL MP4A TRANSIENT DATA



WURTSMITH AFB PILOT TESTING  
SITE SS08B  
WELL MP4B TRANSIENT DATA



**WURTSMITH PILOT TESTING**  
**SITE SSO8B**  
**VACUUM AND PRESSURE STEP TESTS**  
**December 2, 1997**

**VACUUM STEP TEST (UP)**

Time	MP6 Vacuum (in H2O)	Flow Rate (scfm)
11:05	start test	
11:21	2.5	34.7
11:23	2.5	35.6
11:25	2.5	35.6
11:26	5.0	
11:27	5.0	65.4
11:29	5.0	65.4
11:31	5.0	65.4
11:32	7.5	
11:33	7.5	95.8
11:34	7.5	95.8
11:36	7.5	96.0
11:39	10.0	
11:41	10.0	121.3
11:43	10.0	121.3
11:45	10.0	121.3
11:46	12.5	
11:47	12.5	151.0
11:49	12.5	150.2
11:51	12.5	150.5
11:43	15.0	
11:55	15.0	178.0
11:57	15.0	177.1
11:59	15.9	177.3
12:00	16.4	
12:03	16.4	192.3
12:05	16.4	192.3
12:07	16.4	192.4

**VACUUM STEP TEST (DOWN)**

Time	MP6 Vacuum (in H2O)	Flow Rate (scfm)
12:10	15.0	
12:12	15.0	175.8
12:14	15.0	175.5
12:16	15.0	175.5
12:17	12.5	
12:19	12.5	147.5
12:21	12.5	146.4
12:23	12.5	146.9
12:26	10.0	
12:27	10.0	117.6
12:29	10.0	117.3
12:31	10.0	117.3
12:32	7.5	
12:34	7.5	89.0
12:36	7.5	89.6
12:38	7.5	89.0
12:40	5.0	
12:41	5.0	59.0
12:43	5.0	59.0
12:45	5.0	59.2
12:46	2.5	
12:48	2.5	31.6
12:50	2.5	30.6
12:52	2.5	31.1

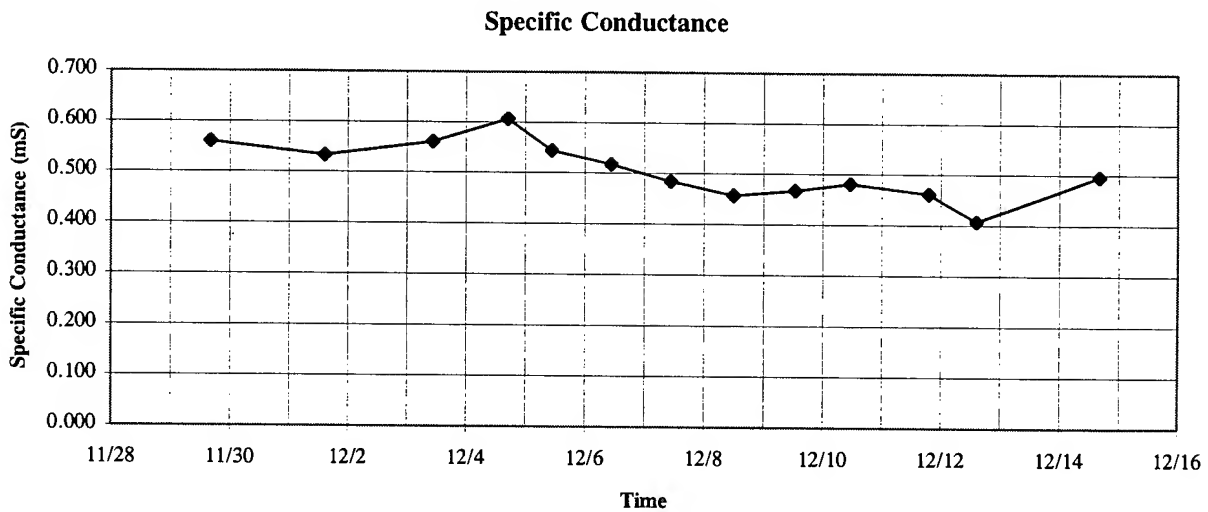
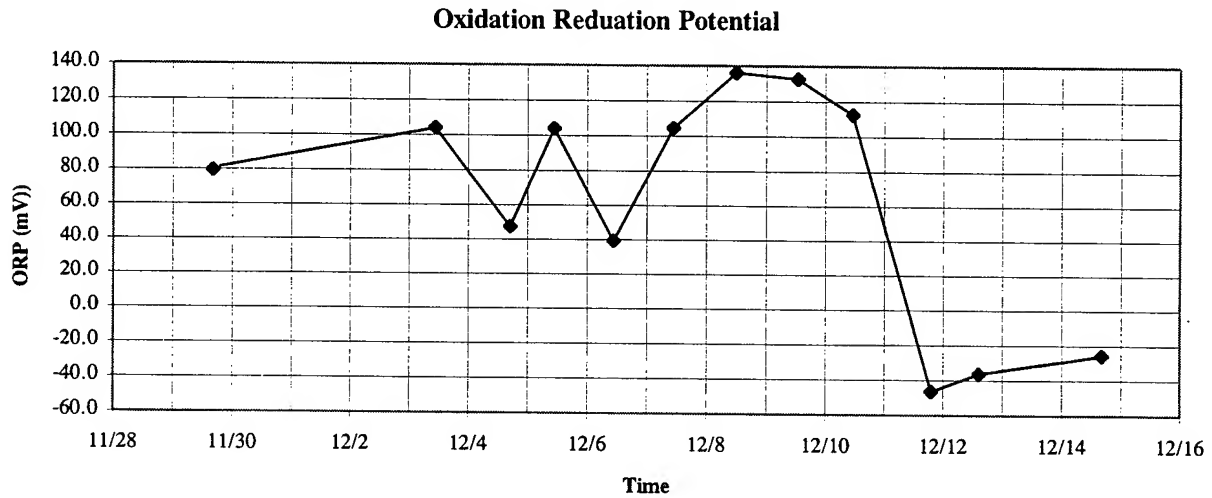
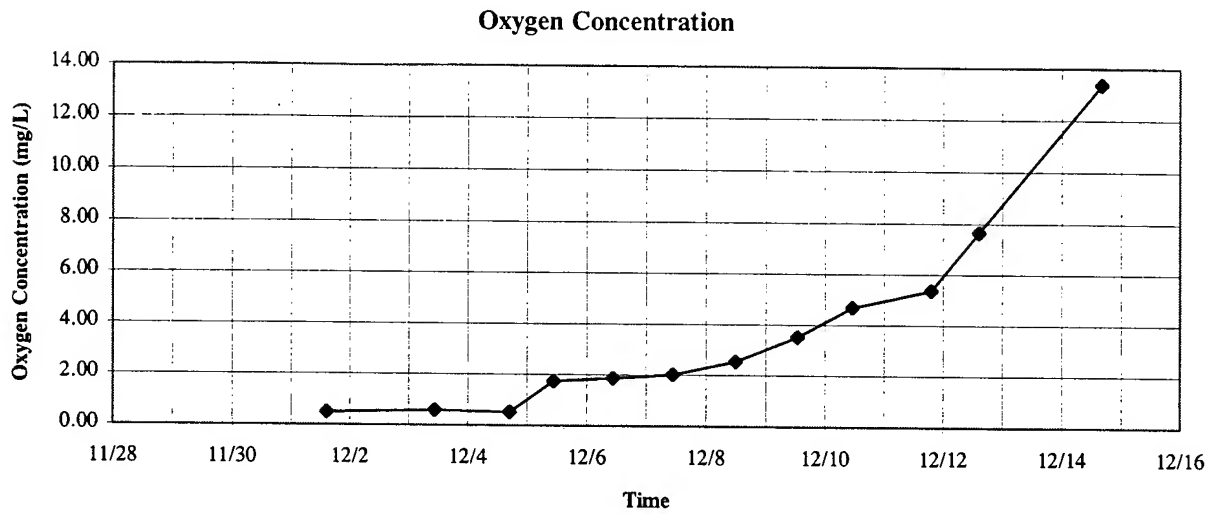
end of vacuum step test

**PRESSURE STEP TEST (UP)**

Time	MP6 Pressure (in H2O)	Flow Rate (scfm)
14:21	5.0	63.7
14:23	5.0	63.7
14:25	5.0	64.2
14:26	10.0	
14:28	10.0	122.6
14:30	10.0	122.3
14:32	10.0	122.7
14:34	15.0	
14:36	15.0	180.4
14:38	15.0	180.4
14:40	15.0	180.6
14:41	17.3	
14:42	17.3	204.0
14:46	17.3	204.0
14:48	17.3	203.8

End of pressure step test

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1C**



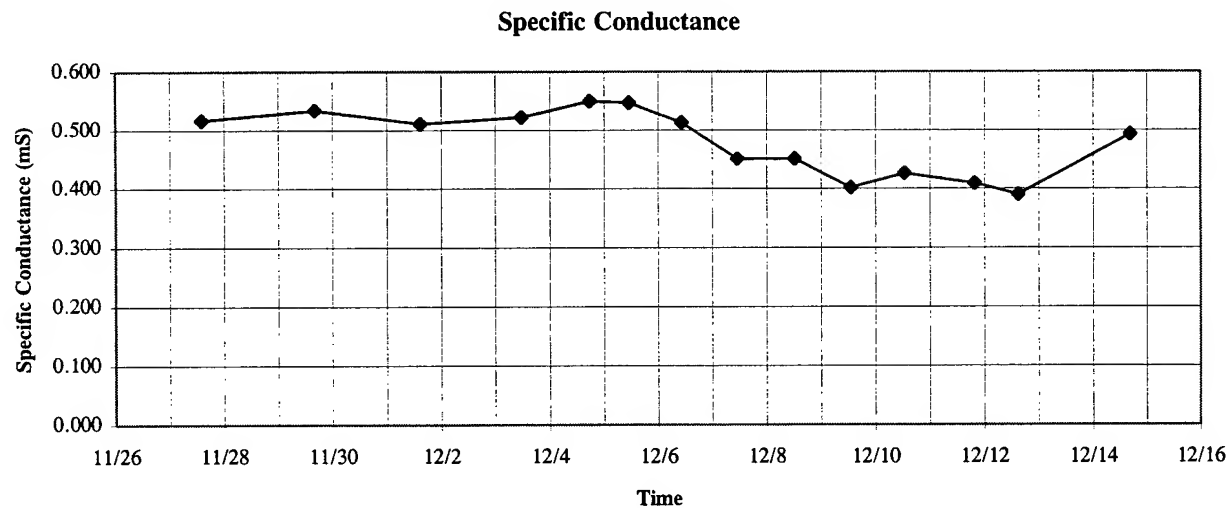
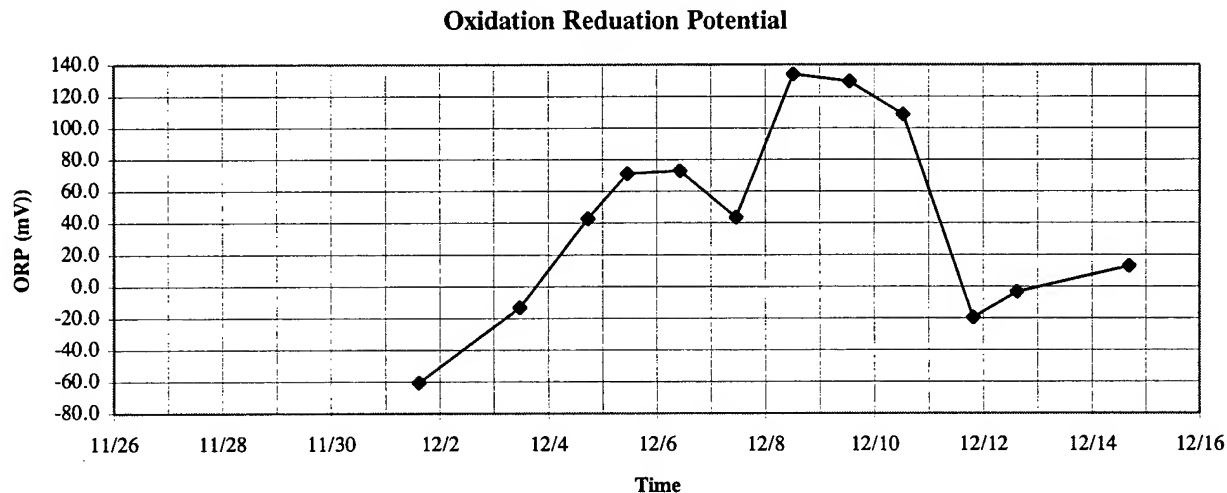
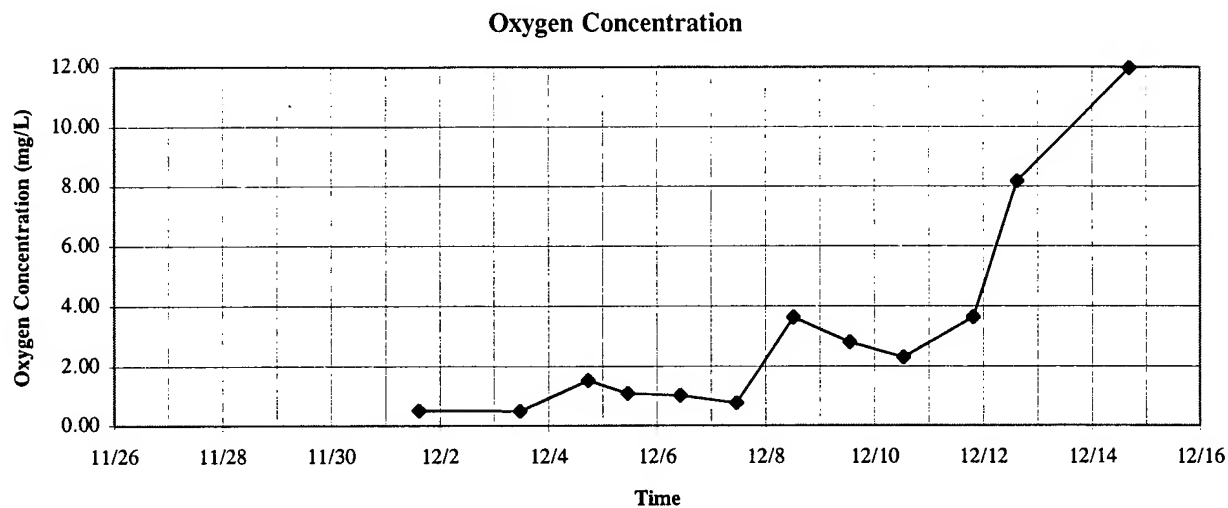
Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30



**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1D**

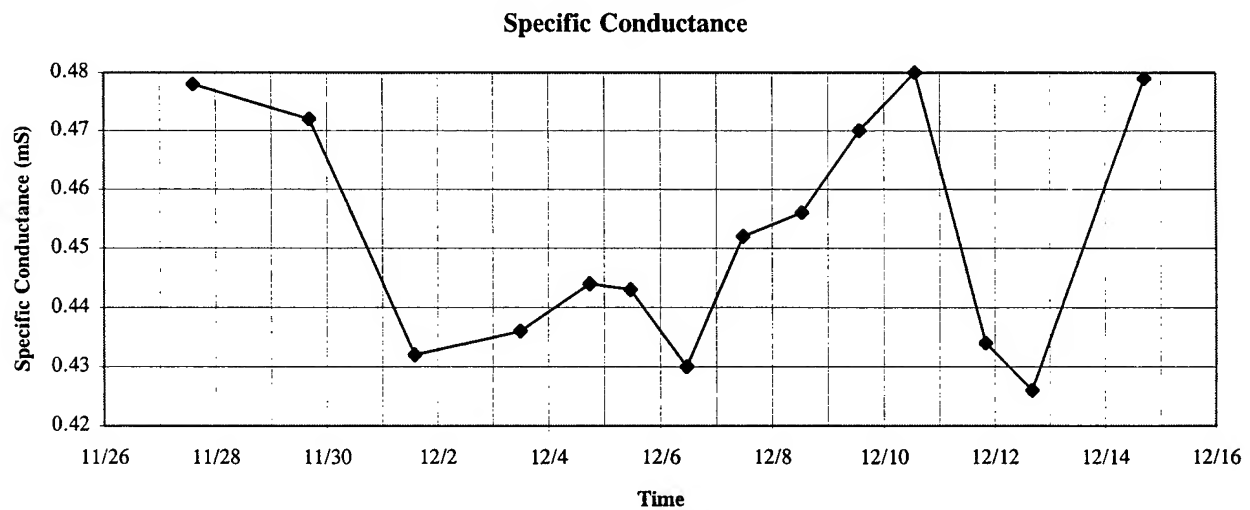
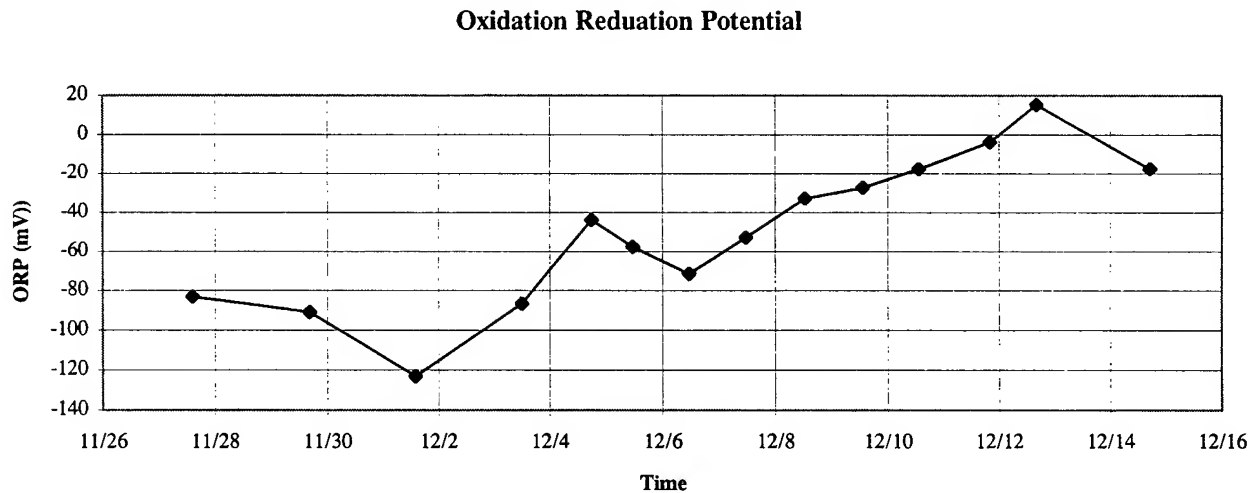
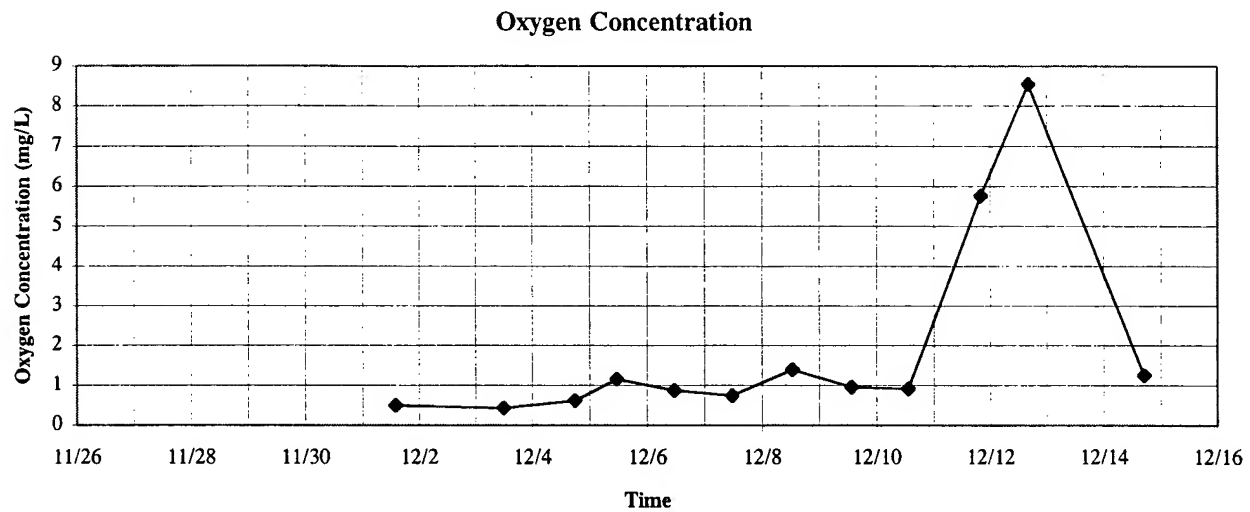


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1E**

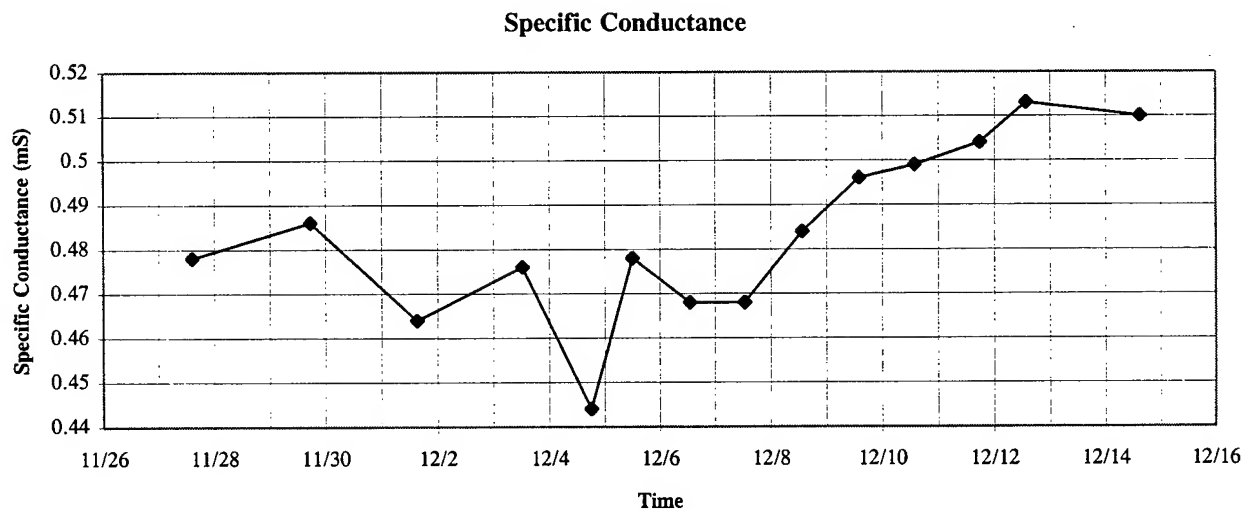
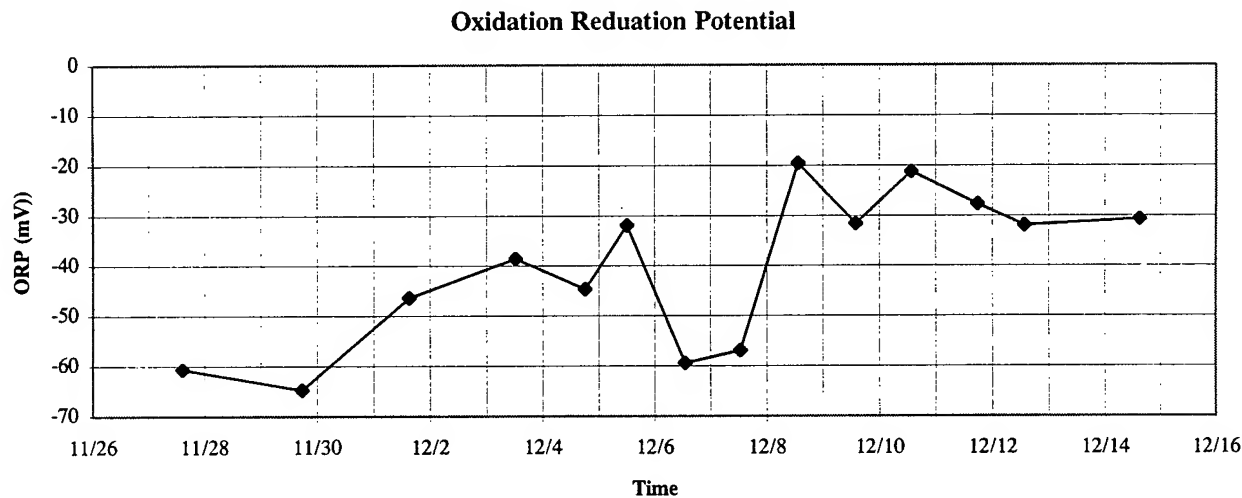
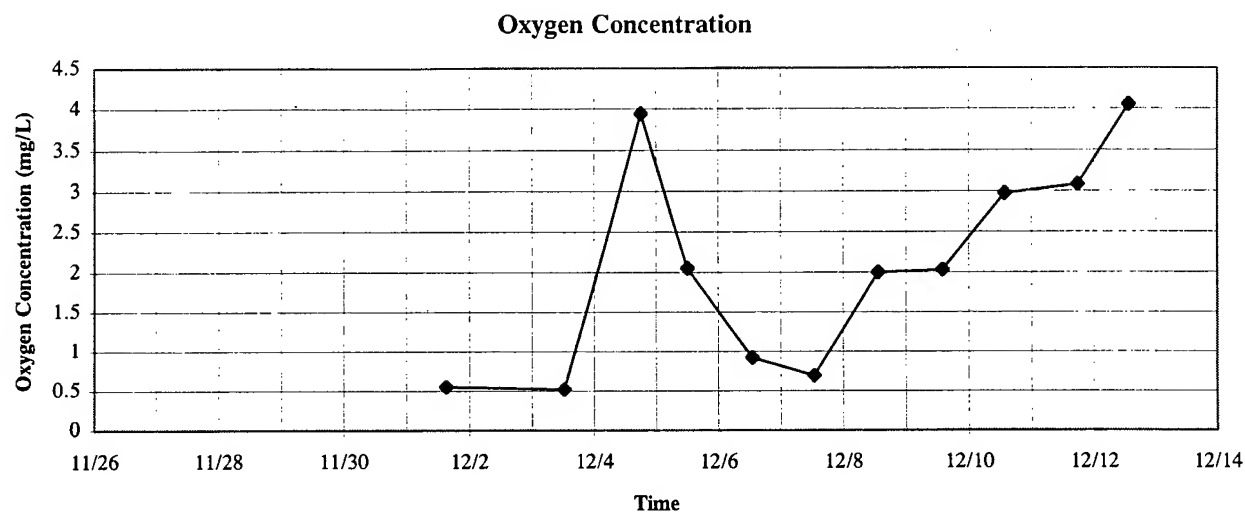


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2C**

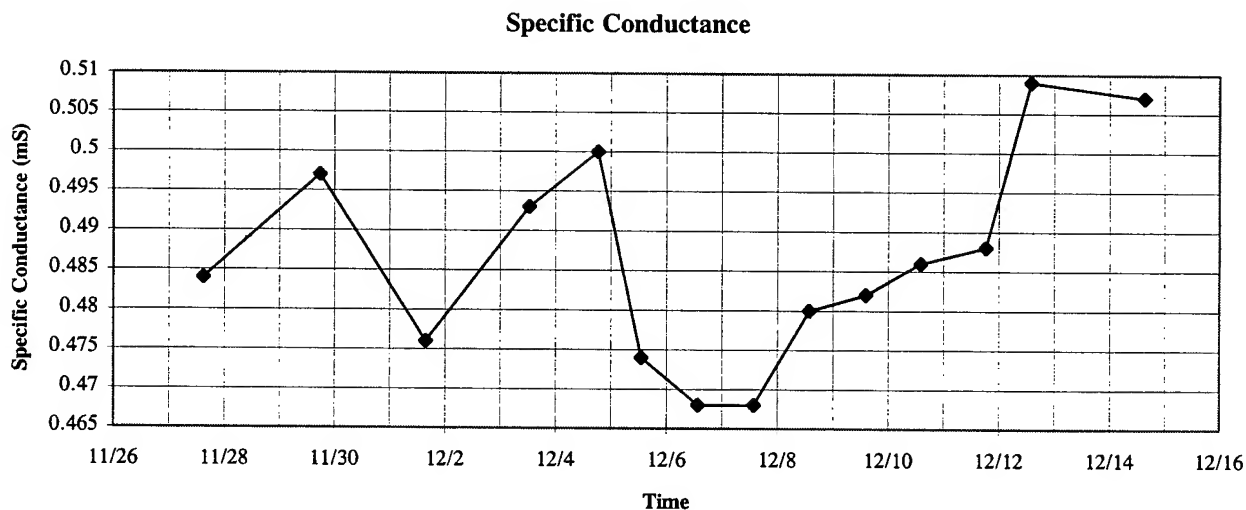
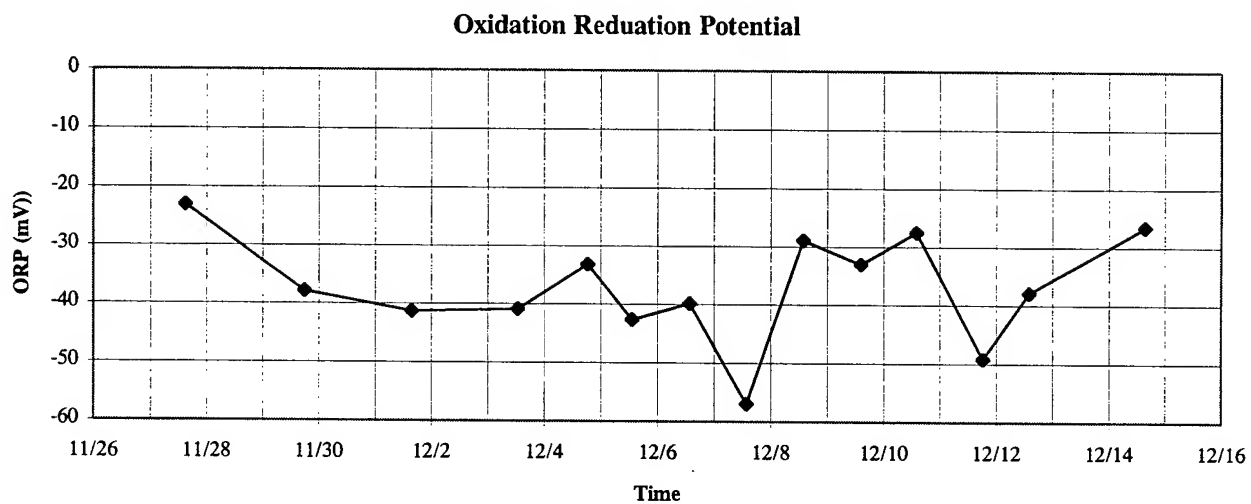
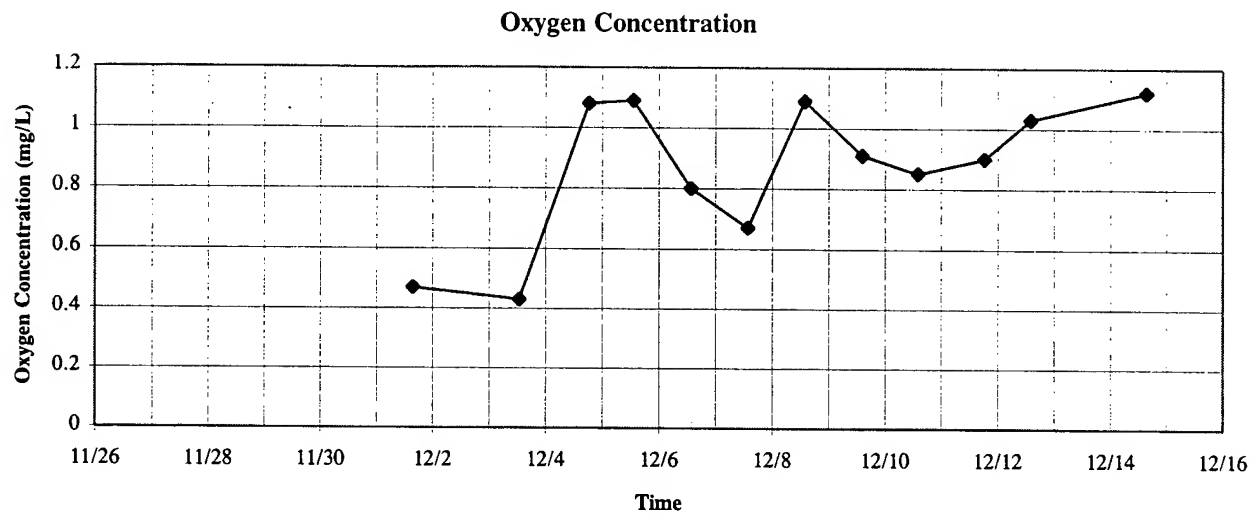


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2D**

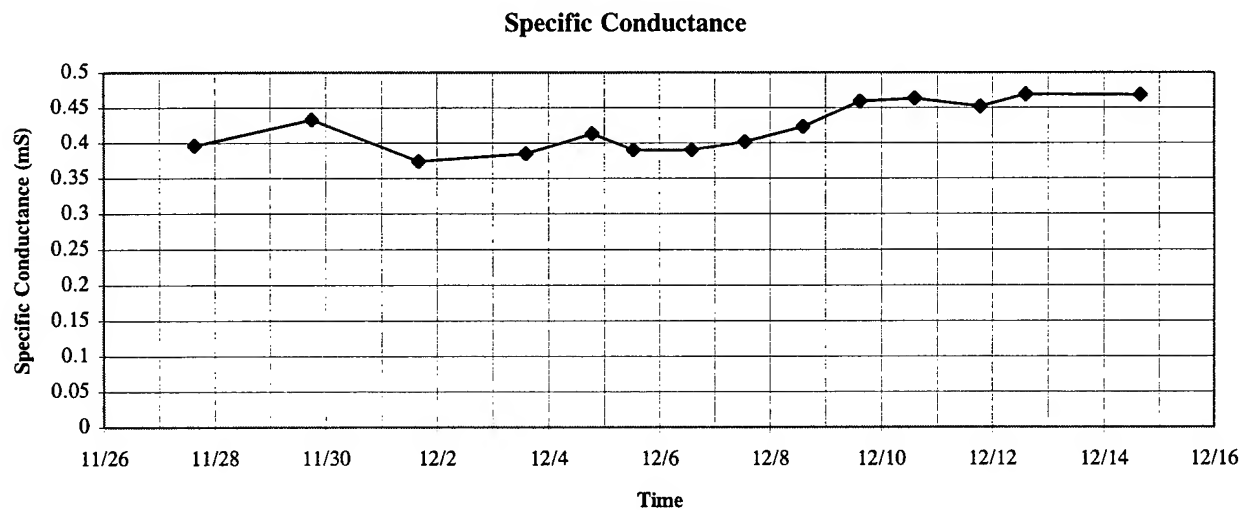
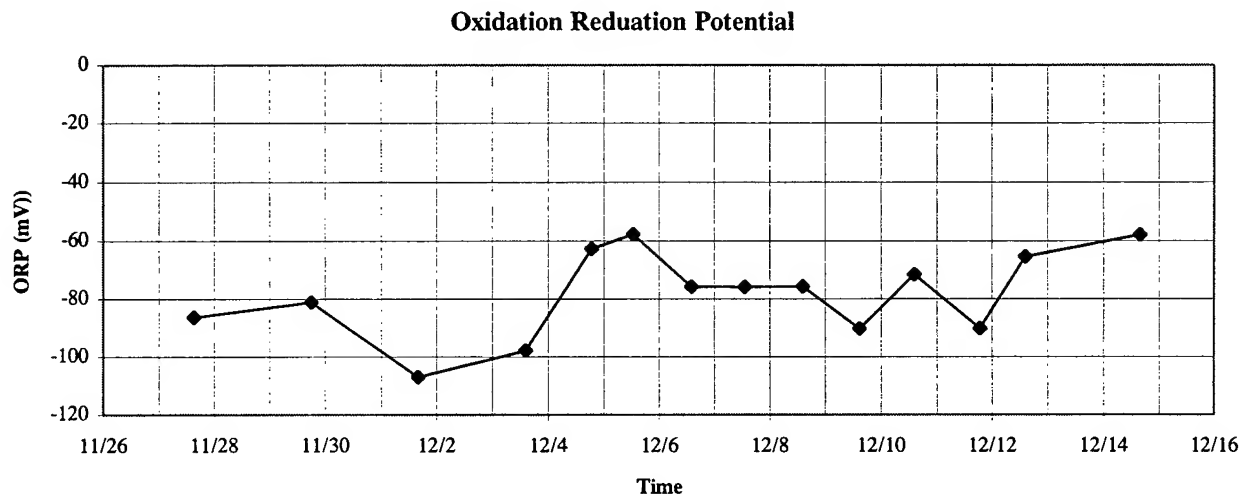
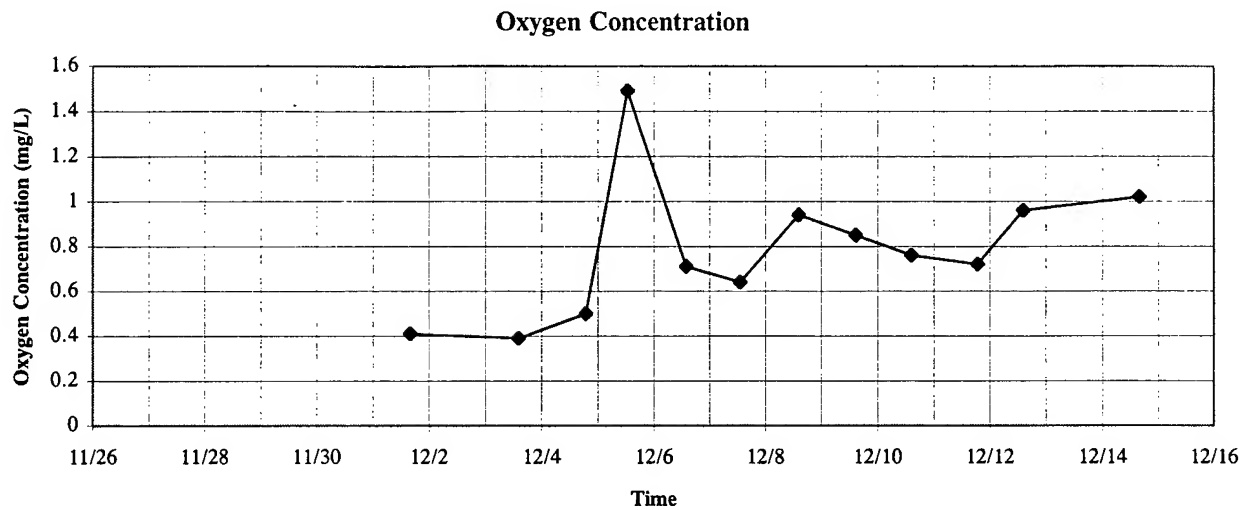


Air Permeability Testing on 12/2/97  
 Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
 Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
 Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2E**

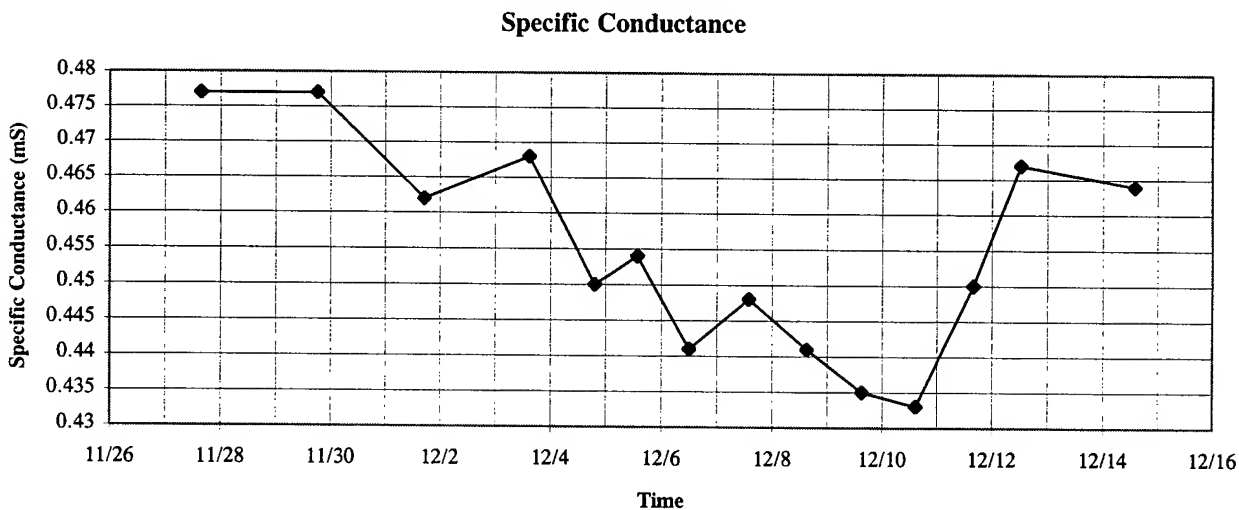
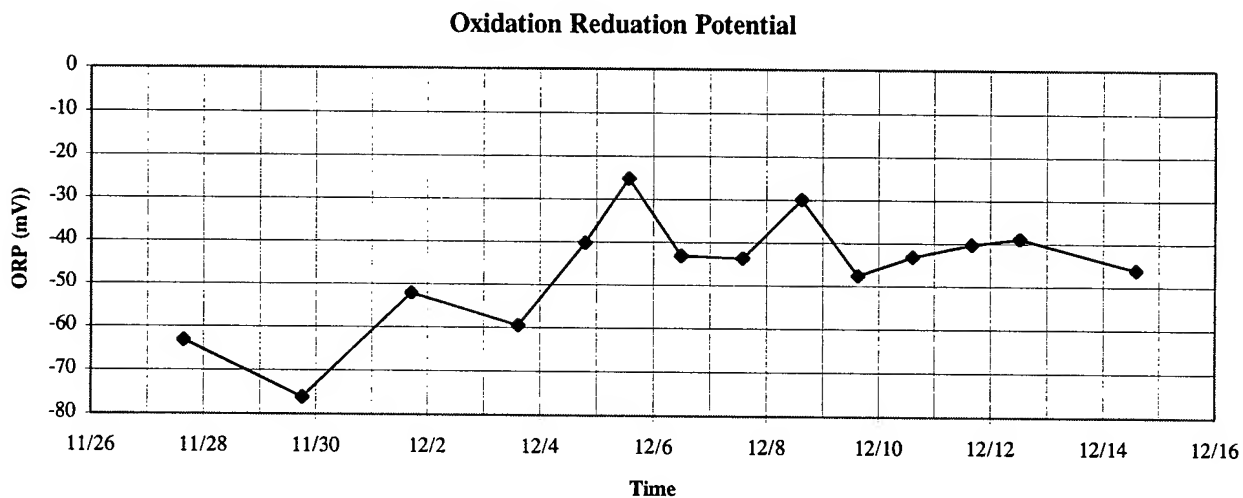
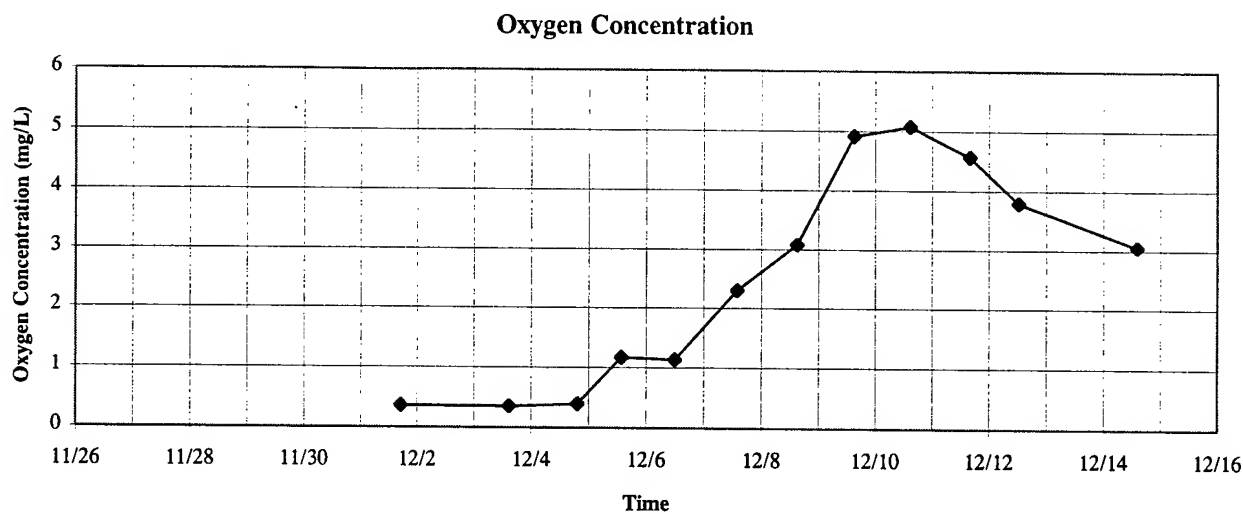


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3C**

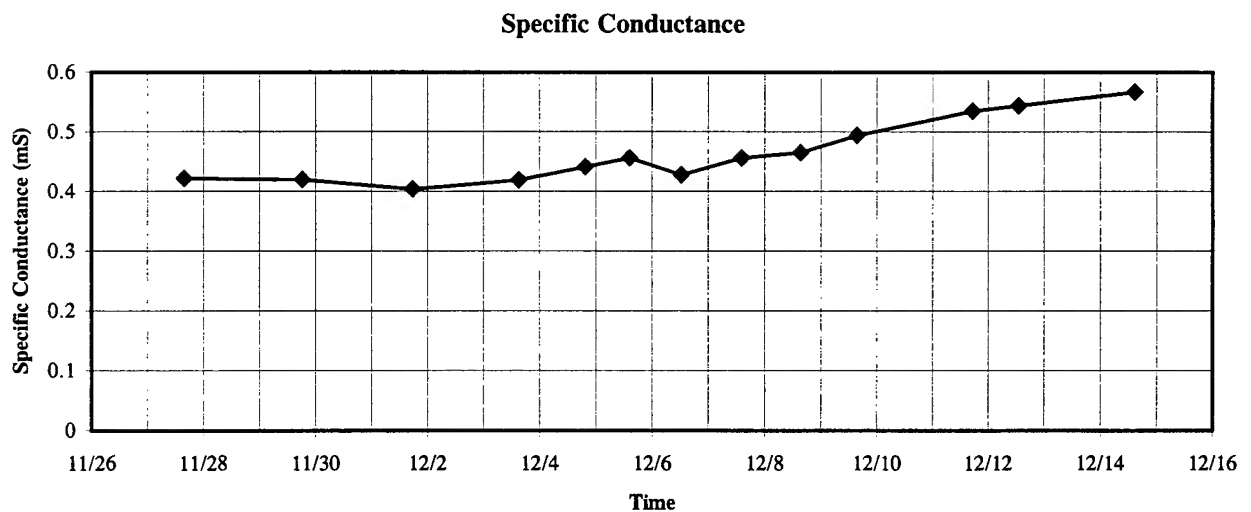
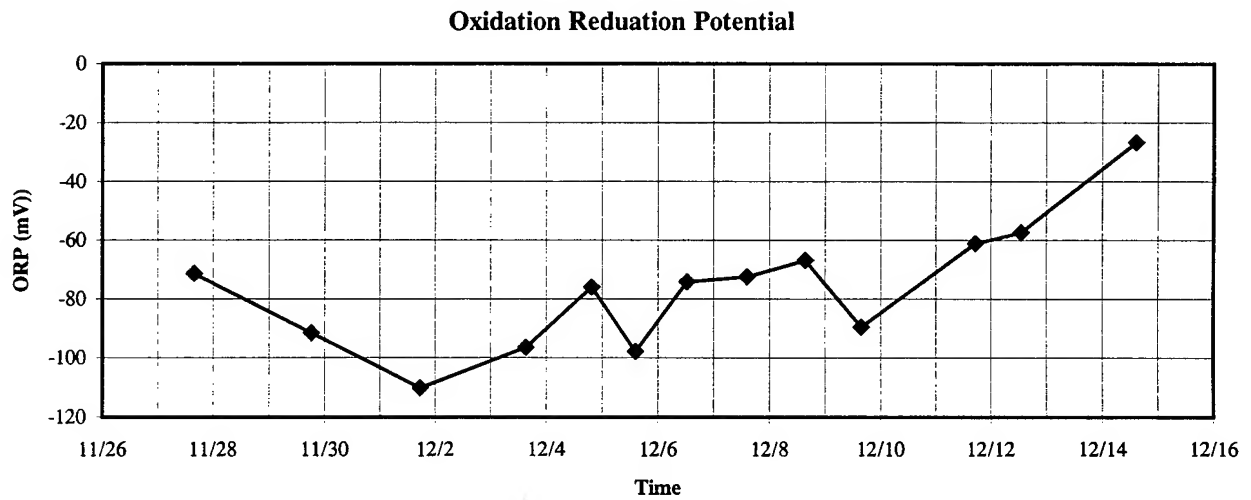
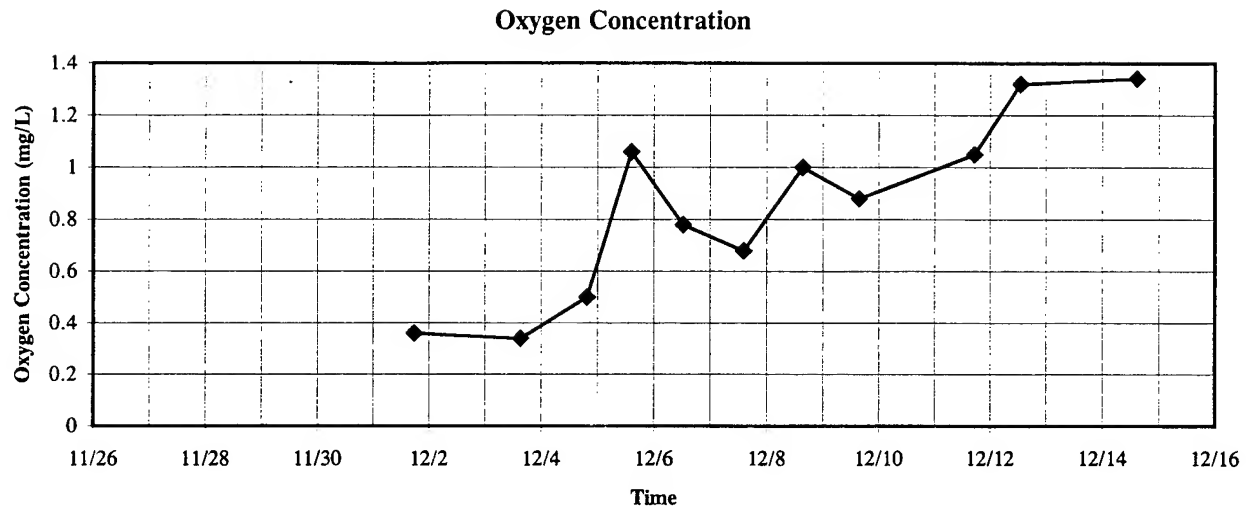


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3D**

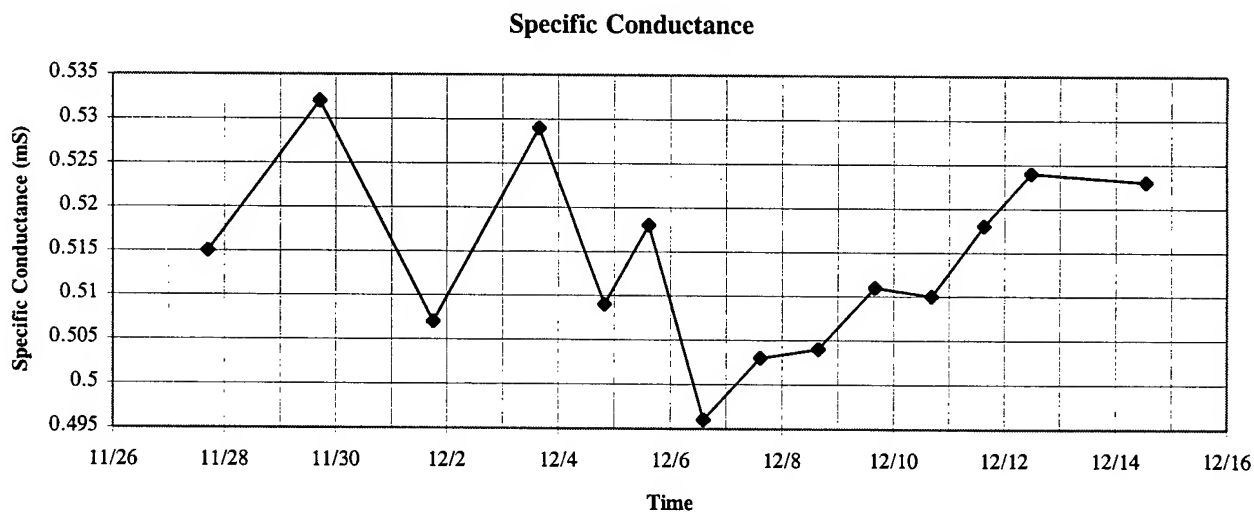
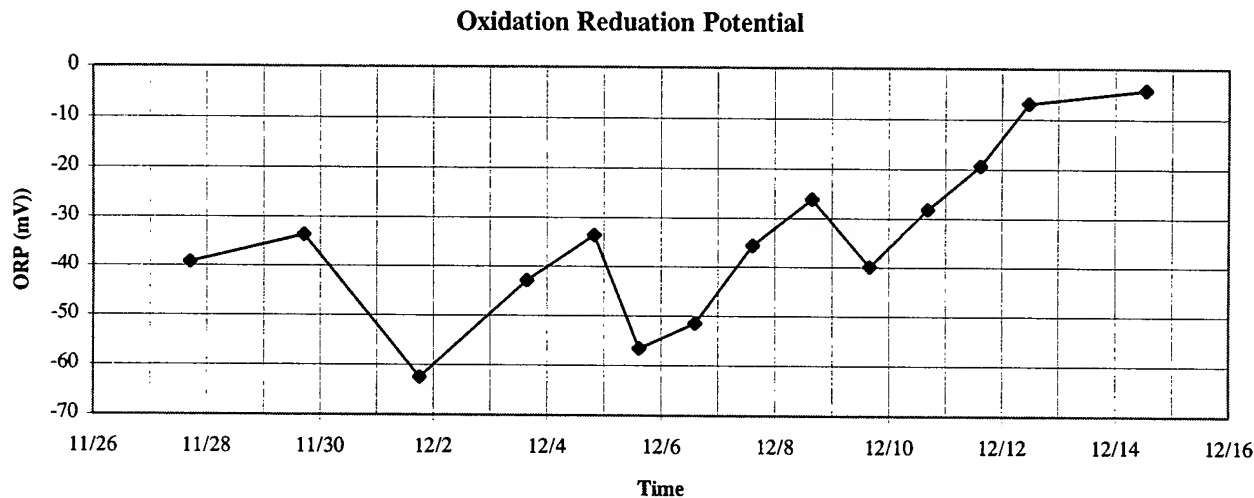
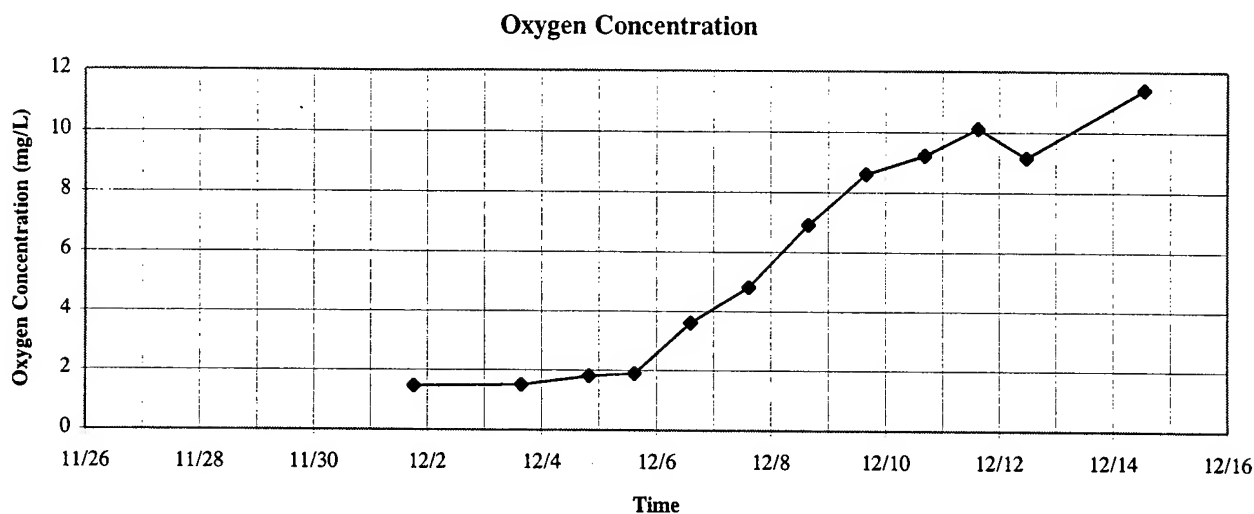


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4C**



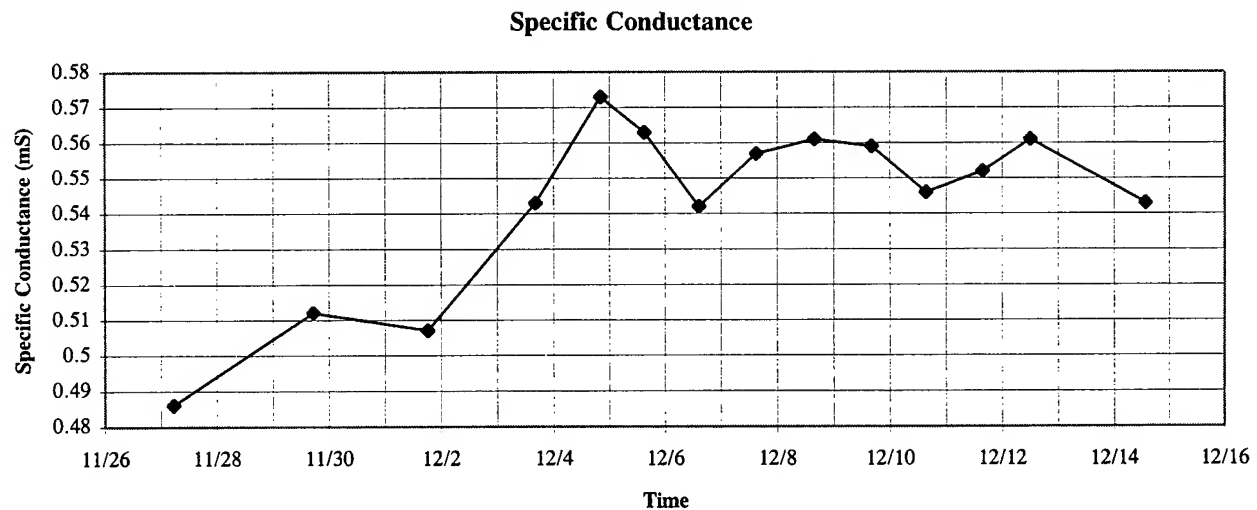
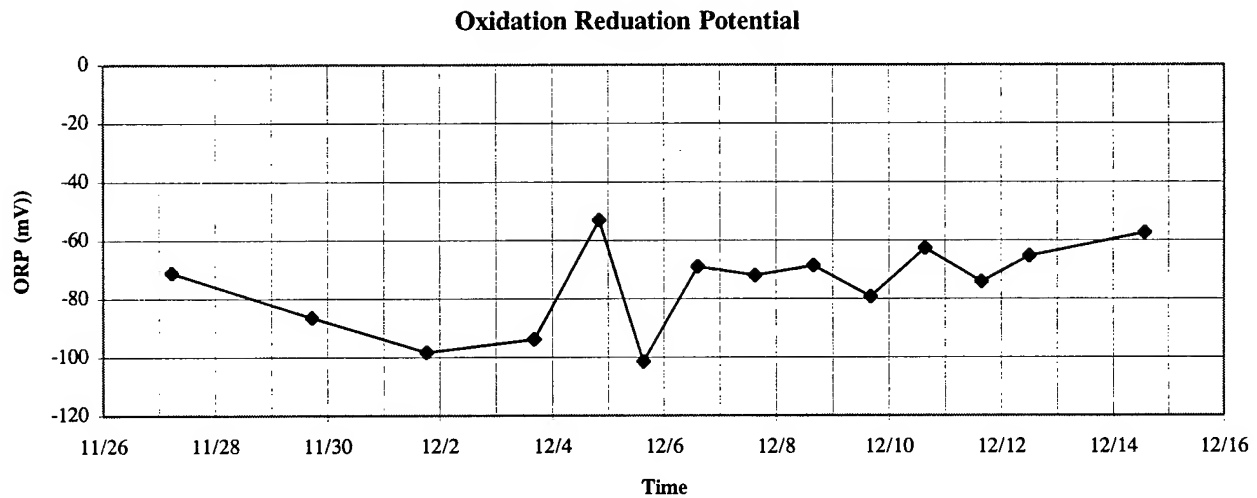
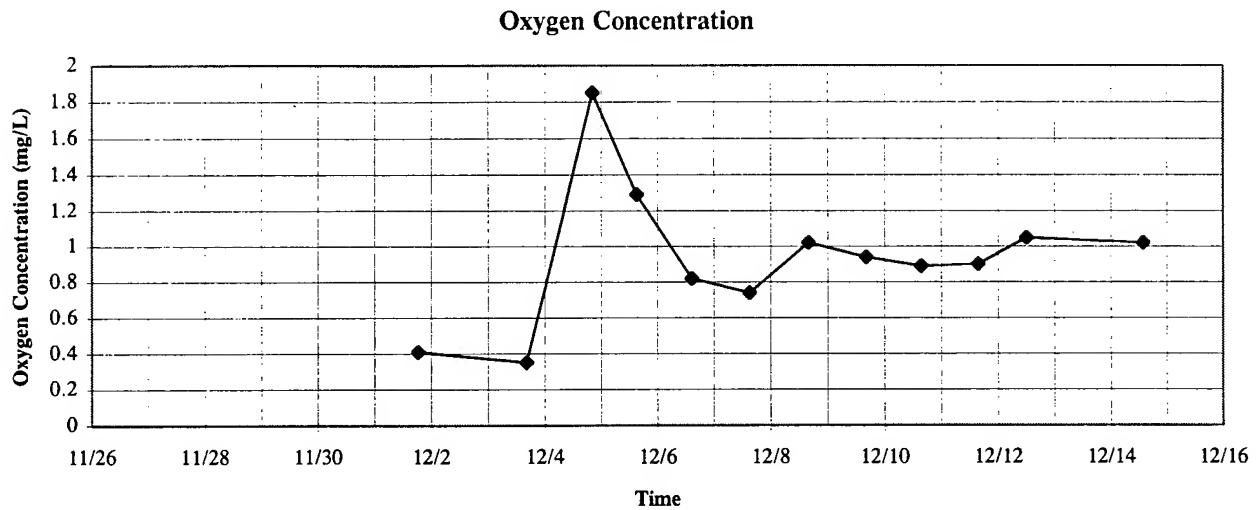
Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30



**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4D**

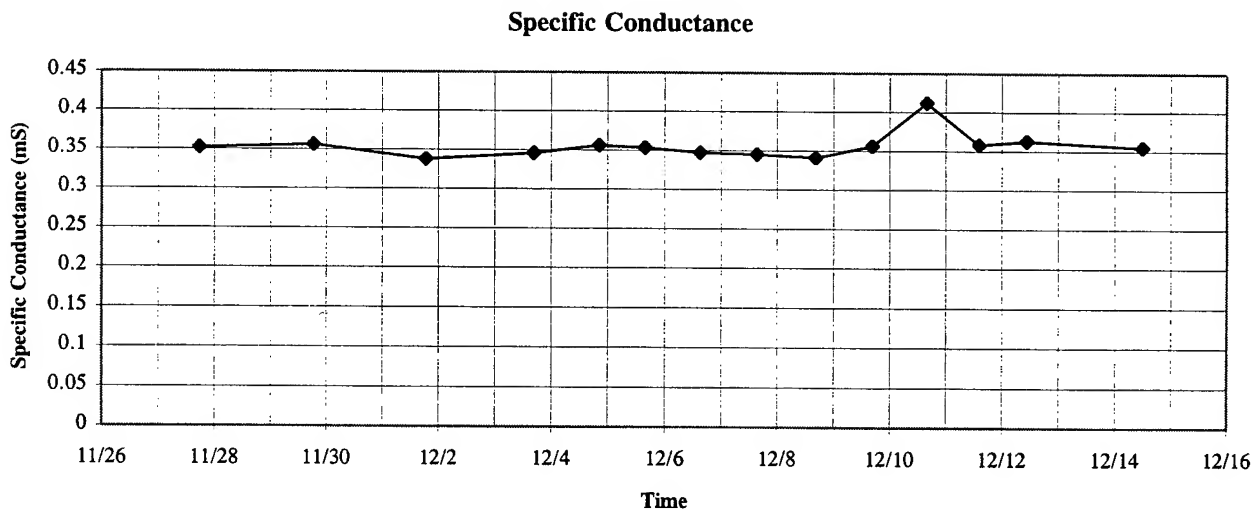
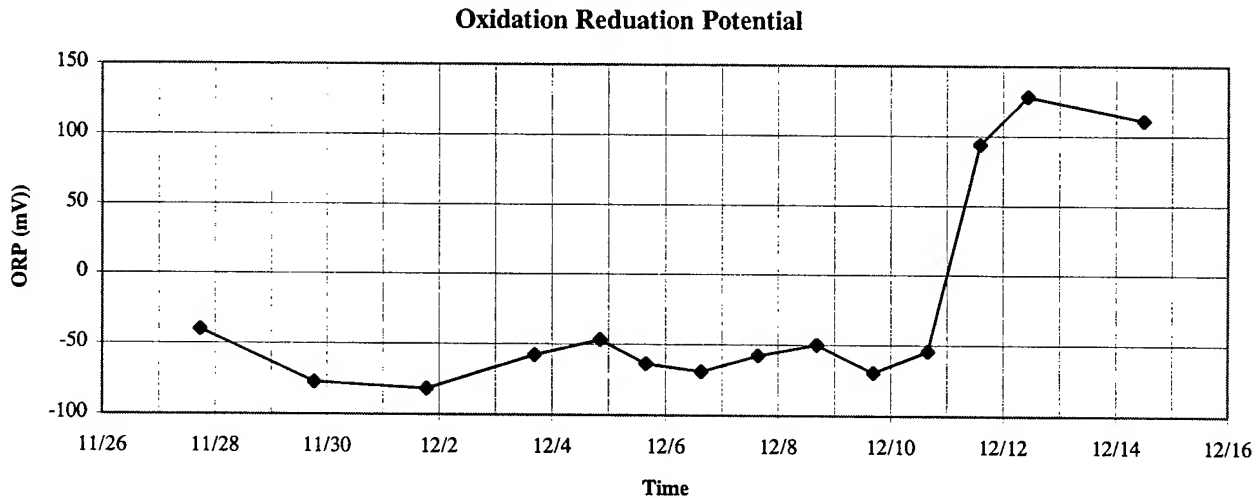
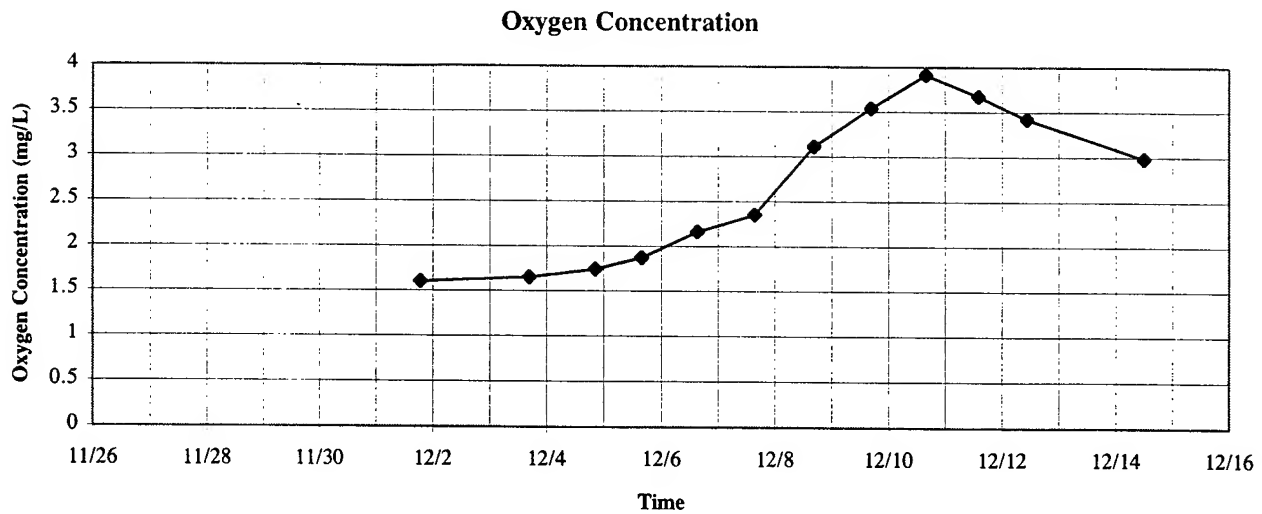


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5C**

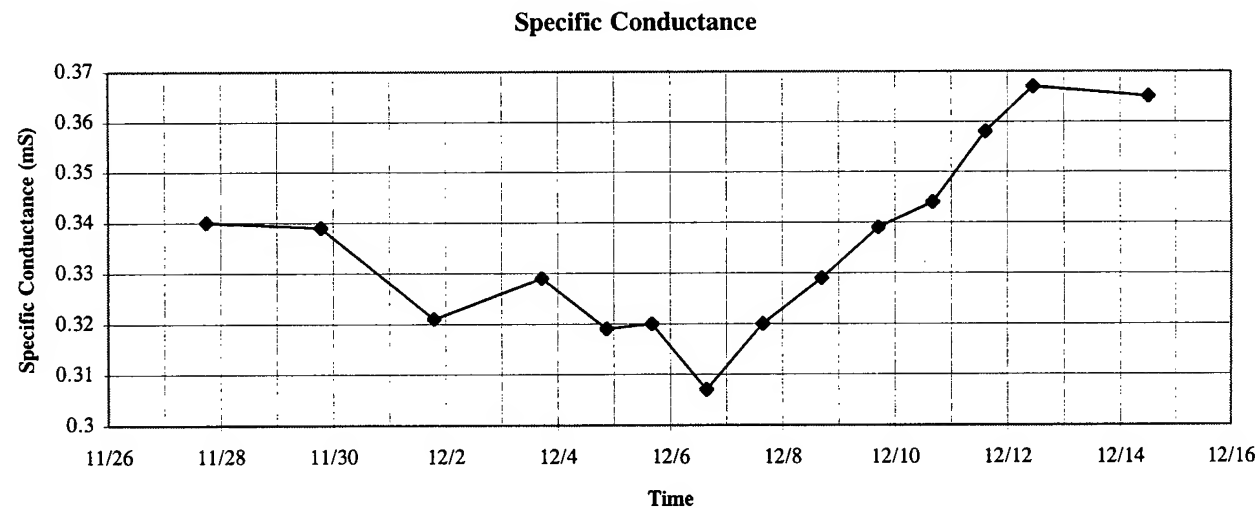
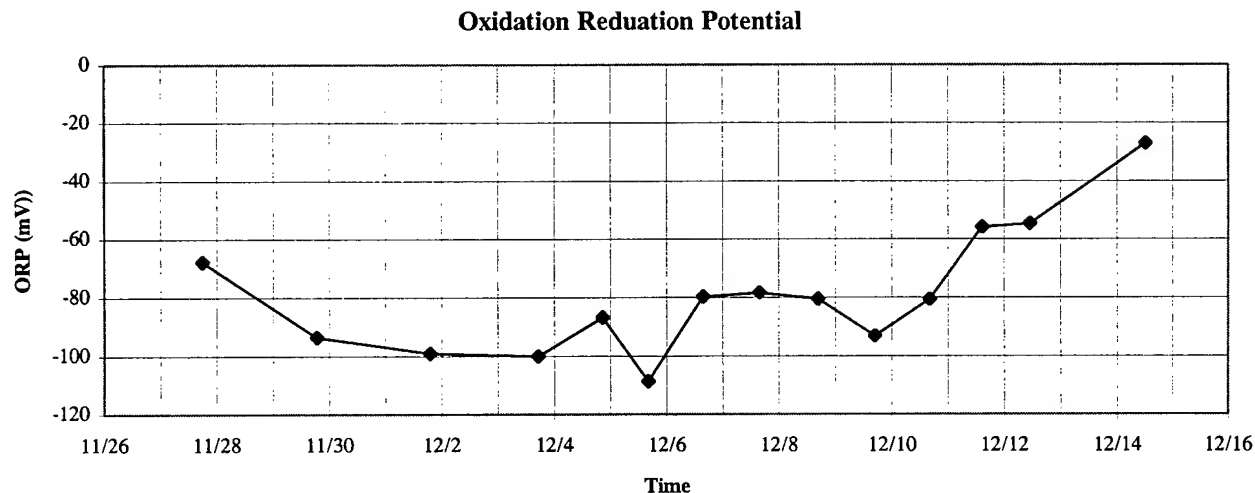
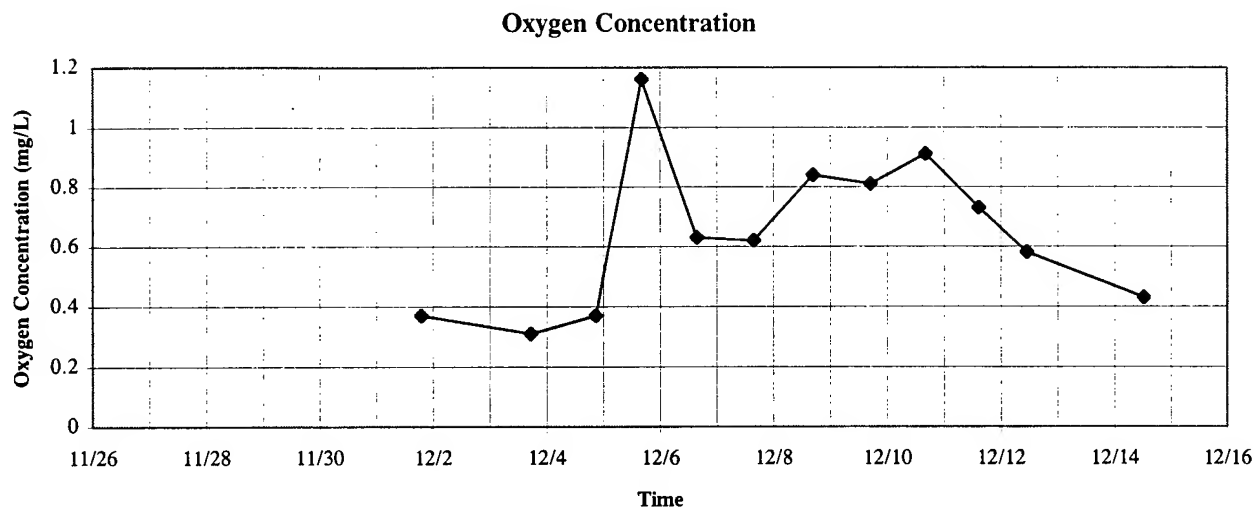


Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5D**



Air Permeability Testing on 12/2/97  
Steady State Extraction 12/2-11/97

SVE on 12/2/97 21:35  
Sparge on 12/4/97 16:00

50% Pulsed Sparge 12/7/97 15:30  
Sparge and SVE off 12/11/97 23:30

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1C**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/29/97 16:05	0.364	0.27	10.62	7.21	11.6*	1.29*	79.4	0.560
12/1/97 14:28	0.345	0.26	9.07	7.29	4.2	0.49	-85.2*	0.533
12/3/97 10:40	0.364	0.27	10.04	7.20	5.2	0.58	104.2	0.561
12/4/97 16:57	0.393	0.30	9.80	7.34	4.5	0.51	47.3	0.606
12/5/97 10:41	0.354	0.27	8.42	7.28	14.9	1.74	104.1	0.544
12/6/97 10:43	0.336	0.25	8.00	7.21	15.7	1.86	39.2	0.517
12/7/97 10:40	0.312	0.23	7.29	7.18	16.7	2.02	104.5	0.484
12/8/97 11:55	0.296	0.22	8.33	7.16	21.6	2.54	136.0	0.457
12/9/97 12:50	0.305	0.23	8.70	7.21	30.2	3.52	132.6	0.467
12/10/97 11:10	0.311	0.23	7.13	7.38	38.4	4.69	112.7	0.481
12/11/97 19:13	0.303	0.23	8.45	7.45	46.1	5.37	-46.6	0.461
12/12/97 14:35	0.265	0.20	8.37	7.46	65.2	7.64	-36.4	0.407
12/14/97 16:13	0.323	0.24	9.04	7.46	115.9	13.36	-25.8	0.496

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1D**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 14:05	0.366	0.25	9.60	7.15	15*	1.71*	75.9*	0.517
11/29/97 16:15	0.347	0.26	10.20	7.12	10.9*	1.23*	80.2*	0.534
12/1/97 14:43	0.332	0.25	8.97	7.12	4.3	0.50	-60.6	0.511
12/3/97 11:32	0.340	0.25	9.58	7.12	4.3	0.49	-13.3	0.522
12/4/97 17:35	0.355	0.26	5.38	7.23	12.6	1.52	42.7	0.550
12/5/97 11:01	0.355	0.27	9.01	7.11	9.4	1.08	71.1	0.547
12/6/97 10:22	0.334	0.25	7.60	7.00	8.6	1.02	72.9	0.513
12/7/97 11:10	0.294	0.22	7.30	7.13	6.3	0.76	43.5	0.451
12/8/97 12:25	0.293	0.22	8.47	7.21	31.1	3.63	134.0	0.451
12/9/97 13:10	0.262	0.19	8.53	7.31	23.8	2.80	129.5	0.402
12/10/97 12:55	0.277	0.21	7.01	7.41	19.0	2.30	108.7	0.426
12/11/97 19:38	0.265	0.21	8.54	7.34	31.5	3.64	-19.6	0.409
12/12/97 14:55	0.254	0.19	8.24	7.38	69.4	8.17	-3.5	0.390
12/14/97 16:35	0.321	0.24	8.82	7.35	103.4	11.97	12.8	0.493

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP1E**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 14:26	0.311	0.23	9.10	7.19	12.7*	1.46*	-83.2	0.478
11/29/97 16:30	0.307	0.23	9.75	7.13	9.3*	1.06*	-91.0	0.472
12/1/97 14:03	0.281	0.21	8.61	7.19	4.2	0.49	-123.1	0.432
12/3/97 11:58	0.284	0.21	9.26	7.20	3.7	0.43	-86.7	0.436
12/4/97 17:56	0.289	0.21	9.23	6.61	5.6	0.61	-43.8	0.444
12/5/97 11:20	0.287	0.21	7.56	7.06	9.6	1.15	-57.7	0.443
12/6/97 11:19	0.279	0.21	7.57	7.06	7.3	0.87	-71.6	0.430
12/7/97 11:30	0.295	0.22	7.08	7.04	6.1	0.74	-52.9	0.452
12/8/97 12:50	0.296	0.22	7.43	6.99	11.6	1.39	-32.8	0.456
12/9/97 13:30	0.304	0.23	8.40	7.00	8.1	0.95	-27.3	0.470
12/10/97 13:20	0.312	0.23	7.20	7.06	7.5	0.91	-17.8	0.480
12/11/97 20:03	0.282	0.21	10.41	7.36	37.9	5.76	-3.9	0.434
12/12/97 16:15	0.259	0.19	9.49	7.48	75.6	8.54	15.3	0.426
12/14/97 17:00	0.311	0.22	8.71	7.15	10.7	1.25	-17.6	0.479

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2C**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 14:40	0.310	0.23	10.05	7.31	13.9*	1.57*	-60.7	0.478
11/29/97 17:35	0.316	0.24	10.42	7.32	9.2*	1.02*	-64.8	0.486
12/1/97 15:13	0.301	0.22	8.87	7.28	4.7	0.55	-46.4	0.464
12/3/97 12:26	0.309	0.23	9.91	7.33	4.6	0.52	-38.6	0.476
12/4/97 18:14	0.288	0.21	8.42	7.04	33.7	3.94	-44.7	0.444
12/5/97 12:11	0.311	0.23	4.48	7.29	15.8	2.05	-31.9	0.478
12/6/97 13:10	0.304	0.23	8.16	7.29	7.8	0.92	-59.4	0.468
12/7/97 12:50	0.305	0.23	7.25	7.14	5.8	0.69	-56.9	0.468
12/8/97 13:25	0.315	0.23	7.90	7.24	17.4	2.00	-19.6	0.484
12/9/97 14:00	0.321	0.24	8.94	7.25	17.5	2.03	-31.6	0.496
12/10/97 13:45	0.325	0.24	7.46	7.25	24.8	2.97	-21.2	0.499
12/11/97 17:47	0.327	0.24	10.52	7.27	27.6	3.08	-27.7	0.504
12/12/97 13:30	0.335	0.25	7.69	7.25	34.1	4.05	-31.9	0.513
12/14/97 15:00	0.332	0.25	8.80	7.25	38.5	4.47	-30.7	0.510

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2D**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 14:55	0.314	0.23	9.51	7.18	13*	1.49*	-23.1	0.484
11/29/97 17:50	0.324	0.24	9.91	7.18	8.2*	0.92*	-37.9	0.497
12/1/97 15:36	0.308	0.23	9.36	7.13	4.1	0.47	-41.3	0.476
12/3/97 12:45	0.320	0.24	9.72	7.17	3.8	0.43	-40.9	0.493
12/4/97 18:27	0.325	0.24	7.48	7.10	9.1	1.08	-33.2	0.500
12/5/97 13:15	0.308	0.23	8.56	7.19	9.4	1.09	-42.6	0.474
12/6/97 13:35	0.305	0.23	8.04	7.19	6.8	0.80	-39.8	0.468
12/7/97 13:45	0.303	0.23	7.26	7.17	5.6	0.67	-57.0	0.468
12/8/97 13:50	0.312	0.23	7.77	7.09	9.2	1.09	-28.9	0.480
12/9/97 14:20	0.313	0.23	8.88	7.16	7.9	0.91	-33.0	0.482
12/10/97 14:05	0.315	0.24	7.59	7.16	7.1	0.85	-27.5	0.486
12/11/97 18:19	0.319	0.24	9.50	7.15	7.9	0.90	-49.2	0.488
12/12/97 13:55	0.331	0.25	8.28	7.09	8.7	1.03	-37.9	0.509
12/14/97 15:22	0.329	0.25	8.59	7.10	9.6	1.12	-26.6	0.507

\* Data value abnormal due to error in collection or recording.



**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP2E**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 15:20	0.258	0.19	9.21	7.27	9.7*	1.11*	-86.3	0.396
11/29/97 18:00	0.282	0.21	9.68	7.23	7.3*	0.83*	-81.1	0.433
12/1/97 16:00	0.242	0.18	8.79	7.23	3.5	0.41	-107.1	0.374
12/3/97 14:14	0.251	0.19	6.95	7.32	3.2	0.39	-97.9	0.385
12/4/97 18:49	0.268	0.20	8.51	6.99	4.3	0.50	-62.7	0.413
12/5/97 12:41	0.253	0.19	4.09	7.23	13.1	1.49	-57.7	0.390
12/6/97 14:00	0.254	0.19	7.71	7.23	6.0	0.71	-75.8	0.390
12/7/97 13:15	0.262	0.19	6.56	7.20	5.3	0.64	-75.9	0.402
12/8/97 14:25	0.274	0.20	7.68	7.17	7.9	0.94	-75.6	0.423
12/9/97 14:45	0.299	0.22	8.22	7.15	7.3	0.85	-90.3	0.459
12/10/97 14:25	0.299	0.22	7.44	7.15	6.3	0.76	-71.5	0.463
12/11/97 18:49	0.295	0.22	8.96	8.99	6.3	0.72	-90.2	0.452
12/12/97 14:15	0.306	0.23	7.55	7.18	8.1	0.96	-65.4	0.469
12/14/97 15:52	0.304	0.23	8.60	7.20	8.7	1.02	-57.9	0.468

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3C**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 15:40	0.309	0.23	10.31	7.38	11.4*	1.28*	-63.2	0.477
11/29/97 18:10	0.310	0.23	10.43	7.37	7.3*	0.81*	-76.2	0.477
12/1/97 17:09	0.300	0.22	9.20	7.36	3.1	0.36	-52.1	0.462
12/3/97 14:43	0.304	0.23	9.84	7.41	3.1	0.35	-59.5	0.468
12/4/97 19:20	0.293	0.22	9.61	7.37	3.5	0.39	-40.2	0.450
12/5/97 13:48	0.295	0.22	7.82	7.39	9.8	1.17	-25.2	0.454
12/6/97 11:59	0.287	0.21	8.09	7.32	9.6	1.13	-43.2	0.441
12/7/97 14:00	0.292	0.22	7.63	7.35	19.3	2.30	-43.7	0.448
12/8/97 15:00	0.287	0.21	8.39	7.35	26.3	3.08	-29.9	0.441
12/9/97 15:05	0.282	0.21	8.51	7.32	42.0	4.91	-47.6	0.435
12/10/97 14:50	0.281	0.21	7.86	7.32	42.7	5.07	-43.2	0.433
12/11/97 16:00	0.293	0.22	7.10	7.31	37.8	4.57	-40.3	0.450
12/12/97 12:25	0.303	0.23	9.05	7.32	32.9	3.79	-38.9	0.467
12/14/97 14:10	0.302	0.23	7.39	7.34	25.4	3.05	-46.1	0.464

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP3D**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 15:45	0.274	0.20	9.43	7.19	9.7*	1.11*	-71.3	0.422
11/29/97 18:20	0.273	0.20	10.07	7.20	6.9*	0.78*	-91.6	0.420
12/1/97 17:39	0.262	0.19	8.64	7.18	3.1	0.36	-110.2	0.404
12/3/97 15:12	0.272	0.20	9.46	7.24	3.0	0.34	-96.5	0.419
12/4/97 19:33	0.286	0.21	8.83	7.17	4.3	0.50	-75.9	0.441
12/5/97 14:24	0.296	0.22	7.58	7.16	8.9	1.06	-97.9	0.456
12/6/97 12:30	0.278	0.21	8.03	7.10	6.6	0.78	-74.1	0.428
12/7/97 14:20	0.296	0.22	7.99	7.09	5.7	0.68	-72.4	0.456
12/8/97 15:20	0.303	0.23	8.08	7.05	8.5	1.00	-66.8	0.465
12/9/97 15:30	0.321	0.24	8.53	7.04	7.6	0.88	-89.5	0.494
12/10/97 15:10	0.286	0.21	6.11	7.34	47.5	5.89	-15.5	0.441
12/11/97 17:12	0.347	0.26	9.49	7.01	9.2	1.05	-61.1	0.535
12/12/97 13:03	0.355	0.27	7.92	7.00	11.2	1.32	-57.3	0.544
12/14/97 14:35	0.369	0.28	6.92	7.02	11.0	1.34	-26.6	0.567

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4C**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 17:00	0.335	0.25	9.77	7.38	30.1*	3.41*	-39.2	0.515
11/29/97 17:05	0.346	0.26	10.03	7.37	15.2*	1.71*	-33.7	0.532
12/1/97 18:11	0.328	0.25	8.94	7.35	12.7	1.47	-62.5	0.507
12/3/97 15:41	0.341	0.26	8.80	7.41	13.0	1.51	-42.9	0.529
12/4/97 19:58	0.329	0.25	9.24	7.27	15.8	1.81	-33.6	0.509
12/5/97 14:48	0.337	0.25	8.04	7.37	16.0	1.90	-56.6	0.518
12/6/97 14:20	0.322	0.24	8.14	7.31	30.6	3.61	-51.5	0.496
12/7/97 14:45	0.326	0.24	7.70	7.33	40.4	4.81	-35.6	0.503
12/8/97 15:40	0.327	0.24	7.81	7.32	58.1	6.91	-26.2	0.504
12/9/97 15:55	0.331	0.25	8.01	7.33	72.7	8.60	-39.9	0.511
12/10/97 16:30	0.330	0.25	7.71	7.34	77.4	9.23	-28.2	0.510
12/11/97 15:07	0.335	0.25	6.56	7.30	82.6	10.11	-19.4	0.518
12/12/97 11:30	0.341	0.26	9.10	7.32	79.5	9.15	-6.9	0.524
12/14/97 12:59	0.340	0.25	8.67	7.32	98.0	11.39	-4.3	0.523

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP4D**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 5:20	0.315	0.24	9.61	7.15	18.2*	2.04*	-71.1	0.486
11/29/97 17:20	0.333	0.25	9.90	7.16	8.3*	0.94*	-86.4	0.512
12/1/97 18:27	0.330	0.25	8.18	7.14	3.5	0.41	-98.3	0.507
12/3/97 16:21	0.353	0.26	8.63	7.22	3.0	0.35	-93.9	0.543
12/4/97 20:15	0.373	0.28	4.72	7.13	14.7	1.85	-53.1	0.573
12/5/97 15:15	0.366	0.27	7.79	7.16	10.9	1.29	-101.5	0.563
12/6/97 14:40	0.355	0.27	8.25	7.08	6.9	0.82	-69.0	0.542
12/7/97 15:05	0.360	0.27	7.95	7.10	6.2	0.74	-72.0	0.557
12/8/97 15:55	0.364	0.27	7.75	7.08	8.6	1.02	-68.6	0.561
12/9/97 16:15	0.363	0.27	8.13	7.07	8.0	0.94	-79.2	0.559
12/10/97 15:30	0.354	0.26	6.81	7.07	7.3	0.89	-62.7	0.546
12/11/97 15:35	0.358	0.27	7.35	7.05	7.5	0.90	-74.1	0.552
12/12/97 11:58	0.363	0.27	9.26	7.07	9.1	1.05	-65.3	0.561
12/14/97 13:45	0.353	0.26	8.79	7.08	8.8	1.02	-57.4	0.543

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5C**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 17:35	0.229	0.17	10.11	7.52	30*	3.38*	-40.3	0.352
11/29/97 18:35	0.232	0.17	10.53	7.48	13.6*	1.51*	-77.2	0.356
12/1/97 18:44	0.219	0.16	9.21	7.50	13.9	1.60	-81.9	0.338
12/3/97 16:48	0.225	0.17	9.55	7.58	14.5	1.65	-57.8	0.346
12/4/97 20:33	0.232	0.17	9.81	7.51	15.3	1.74	-47.0	0.356
12/5/97 15:48	0.230	0.17	8.25	7.56	15.9	1.87	-63.8	0.353
12/6/97 15:10	0.226	0.17	8.74	7.46	18.6	2.16	-69.3	0.347
12/7/97 15:25	0.224	0.17	8.29	7.53	20.0	2.35	-57.8	0.345
12/8/97 16:25	0.221	0.16	8.52	7.50	26.6	3.11	-50.2	0.341
12/9/97 16:35	0.233	0.17	8.40	7.48	30.3	3.54	-69.7	0.356
12/10/97 15:50	0.269	0.20	4.84	7.22	30.5	3.91	-54.3	0.412
12/11/97 14:11	0.232	0.17	8.54	7.35	31.5	3.67	94.1	0.358
12/12/97 10:35	0.236	0.17	10.12	7.36	30.4	3.42	128.3	0.363
12/14/97 11:57	0.231	0.17	7.31	7.28	24.7	2.98	111.2	0.355

\* Data value abnormal due to error in collection or recording.

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**GROUNDWATER FIELD PARAMETER DATA FOR WELL MP5D**

Time	Total Dissolved Solids (g/L)	Salinity	Temp (C)	pH	DO (%)	DO (mg/L)	ORP (mv)	Specific Conductance (mS)
11/27/97 17:55	0.221	0.02	9.88	7.26	21.9*	2.47*	-67.8	0.340
11/29/97 18:50	0.220	0.16	10.03	7.33	6*	0.68*	-93.6	0.339
12/1/97 19:06	0.208	0.15	9.12	7.32	3.2	0.37	-99.1	0.321
12/3/97 17:18	0.214	0.16	9.84	7.38	2.8	0.31	-100.0	0.329
12/4/97 20:49	0.207	0.15	9.41	7.34	3.2	0.37	-86.8	0.319
12/5/97 16:15	0.203	0.15	7.98	7.36	9.8	1.16	-108.7	0.320
12/6/97 15:35	0.200	0.15	8.14	7.34	5.3	0.63	-79.8	0.307
12/7/97 15:40	0.208	0.15	8.17	7.35	5.2	0.62	-78.3	0.320
12/8/97 16:50	0.213	0.16	8.38	7.31	7.1	0.84	-80.5	0.329
12/9/97 16:55	0.221	0.16	7.94	7.31	6.8	0.81	-93.1	0.339
12/10/97 16:10	0.224	0.17	7.69	7.28	7.6	0.91	-80.6	0.344
12/11/97 14:40	0.233	0.17	8.18	7.14	6.2	0.73	-55.9	0.358
12/12/97 11:02	0.239	0.18	9.42	7.17	5.1	0.58	-54.7	0.367
12/14/97 12:24	0.238	0.18	8.73	7.13	3.7	0.43	-27.0	0.365

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL GAS FIELD PARAMETER DATA FOR WELL MP1A**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 14:05	20.40	0.00	0.00	0.00	162
11/29/97 16:05	20.30	0.00	0.00	0.00	9.5
12/1/97 14:11	20.30	0.10	0.00		18
12/3/97 10:36	20.20	0.00	0.00		5.4
12/4/97 16:54	20.60	0.00	0.00	0.00	3.5-5.9
12/5/97 9:36	20.40	0.00	0.00	0.00	3.5
12/6/97 10:25	20.30	0.00	0.00	0.00	2.4
12/7/97 10:40	20.40	0.00	0.00	0.00	0.5
12/8/97 11:45	20.60	0.00	0.00	0.00	0.9
12/9/97 12:35	20.20	0.00	0.00	0.00	0.7
12/10/97 11:55	20.40	0.00	0.00	0.00	2.4
12/11/97 17:13	20.30	0.00	0.00	0.00	2.8
12/12/97 9:23	20.20	0.00	0.00	0.15	4.8
12/14/97 10:50	20.40	0.00	0.00	0.17	4.8



**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP1B**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 16:26	20.40	0.00	0.00	0.00	120.00
11/29/97 16:15	20.20	0.00	0.00	0.00	5.70
12/1/97 14:24	20.30	0.20	0.00		14.00
12/3/97 10:56	20.10	0.00	0.00		3.20
12/4/97 17:37	19.90	0.20	0.00	0.91	4.30
12/5/97 9:59	19.80	0.00	0.00	1.50	3.00
12/6/97 10:35	20.30	0.00	0.00	0.00	2.00
12/7/97 10:55	20.00	0.00	0.00	1.70	0.30
12/8/97 12:05	20.10	0.00	0.00	1.10	0.90
12/9/97 12:45	20.00	0.00	0.00	1.00	0.70
12/10/97 12:55	20.40	0.00	0.00	0.85	0.00
12/11/97 17:40	19.90	0.00	0.00	0.98	1.5-1.9
12/12/97 9:45	19.90	0.00	0.00	0.61	3.80
12/14/97 11:14	19.80	0.00	0.00	0.17	2.50

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP2A**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 14:40	20.40	0.00	0.00	0.00	109.00
11/29/97 17:20	20.00	0.00	0.00	0.00	7.60
12/1/97 14:35	20.60	0.20	0.00		10.00
12/3/97 11:11	20.10	0.00	0.00		1.0-3.2
12/4/97 17:53	20.50	0.00	0.00	0.00	5.30
12/5/97 10:16	20.20	0.00	0.00	0.00	4.60
12/6/97 10:55	20.50	0.00	0.00	0.00	1.10
12/7/97 11:20	20.20	0.00	0.00	0.00	0.10
12/8/97 12:15	20.40	0.00	0.00	0.00	0.60
12/9/97 12:55	20.20	0.00	0.00	0.00	0.30
12/10/97 13:10	20.60	0.00	0.00	0.00	0.00
12/11/97 18:00	20.10	0.00	0.00	0.00	2.40
12/12/97 10:19	20.20	0.00	0.00	0.01	1.9-2.4
12/14/97 11:39	20.10	0.00	0.00	0.01	2.50

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP2B**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 14:50	20.40	0.00	0.00	0.00	101.70
11/29/97 17:25	20.00	0.00	0.00	0.00	9.50
12/1/97 14:49	20.10	0.20	0.00		6.00
12/3/97 11:24	20.10	0.10	0.00		1.00
12/4/97 18:12	20.40	0.10	0.00	0.00	3.90
12/5/97 10:30	20.00	0.00	0.00	0.00	5.20
12/6/97 11:36	20.70	0.00	0.00	0.00	0.80
12/7/97 12:45	20.40	0.00	0.00	0.00	0.50
12/8/97 12:30	20.40	0.00	0.00	0.00	0.60
12/9/97 12:55	20.20	0.00	0.00	0.00	0.70
12/10/97 13:20	20.60	0.00	0.00	0.00	0.00
12/11/97 18:21	20.00	0.00	0.00	0.00	1.90
12/12/97 10:39	19.90	0.00	0.00	0.05	2.40
12/14/97 11:56	20.00	0.00	0.00	0.05	1.10

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP3A**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 15:00	20.40	0.00	0.00	0.00	109.20
11/29/97 17:35	19.80	0.10	0.00	0.00	11.40
12/1/97 15:02	19.80	0.20	0.00		10.00
12/3/97 11:45	20.50	0.00	0.00		1.00
12/4/97 18:26	20.50	0.00	0.00	0.00	5.60
12/5/97 10:43	20.10	0.00	0.00	0.00	5.80
12/6/97 12:05	20.80	0.00	0.00	0.00	0.60
12/7/97 12:55	20.20	0.00	0.00	0.00	0.30
12/8/97 12:45	20.50	0.00	0.00	0.00	0.90
12/9/97 13:10	20.30	0.00	0.00	0.00	0.30
12/10/97 13:35	20.80	0.00	0.00	0.00	0.00
12/11/97 18:38	20.10	0.00	0.00	0.00	1.90
12/12/97 10:53	20.10	0.00	0.00	0.00	1.9-1.4
12/14/97 12:26	20.10	0.00	0.00	0.00	1.80

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL GAS FIELD PARAMETER DATA FOR WELL MP3B**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 15:10	20.30	0.00	0.00	0.00	116.00
12/29/97 17:45	19.90	0.10	0.00	0.00	7.60
12/1/97 15:18	20.10	0.20	0.00		6.00
12/3/97 12:07	20.50	0.00	0.00		1.00
12/4/97 18:42	20.50	0.00	0.00	0.00	5.70
12/5/97 10:55	20.10	0.00	0.00	0.00	6.10
12/6/97 12:15	20.70	0.00	0.00	0.00	0.60
12/7/97 13:05	20.10	0.00	0.00	0.00	0.30
12/8/97 13:00	20.50	0.00	0.00	0.00	0.60
12/9/97 13:20	20.40	0.00	0.00	0.00	0.30
12/10/97 13:50	20.80	0.00	0.00	0.00	0.00
12/11/97 19:00	20.00	0.00	0.00	0.00	1.50
12/12/97 11:12	20.00	0.00	0.00	0.05	1.9-1.4
12/14/97 12:54	20.10	0.00	0.00	0.04	1.80

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP4A**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 15:15	20.40	0.00	0.00	0.00	98.00
11/29/97 10:25	20.20	0.00	0.00	0.00	5.70
12/1/97 15:32	20.10	0.20	0.00		8.00
12/3/97 12:29	20.50	0.00	0.00		1.00
12/4/97 19:16	20.60	0.00	0.00	0.00	4.40
12/5/97 11:12	20.40	0.00	0.00	0.00	1.70
12/6/97 13:05	20.70	0.00	0.00	0.00	0.40
12/7/97 13:25	20.20	0.00	0.00	0.00	0.30
12/8/97 13:15	20.50	0.00	0.00	0.00	0.60
12/9/97 13:45	20.30	0.00	0.00	0.00	0.3-0.7
12/10/97 14:05	20.80	0.00	0.00	0.00	0.00
12/11/97 19:19	20.10	0.00	0.00	0.00	1.10
12/12/97 11:40	20.20	0.00	0.00	0.00	1.40
12/14/97 13:10	20.10	0.00	0.00	0.05	1.10

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP4B**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 15:40	20.40	0.10	0.00	0.00	91.00
11/29/97 16:45	19.80	0.10	0.00	0.00	9.50
12/1/97 15:46	20.20	0.20	0.00		8.00
12/3/97 12:39	20.40	0.00	0.00		1.00
12/4/97 19:25	20.60	0.00	0.00	0.00	3.80
12/5/97 11:24	0.00	0.00	0.00	1.20	SJ
12/6/97 13:30	20.70	0.00	0.00	0.00	0.40
12/7/97 13:40	20.30	0.00	0.00	0.00	0.30
12/8/97 13:27	20.60	0.00	0.00	0.00	0.3-0.6
12/9/97 13:56	20.40	0.00	0.00	0.00	0.30
12/10/97 14:20	20.80	0.00	0.00	0.00	0.00
12/11/97 19:37	20.00	0.00	0.00	0.00	0.20
12/12/97 12:21	20.20	0.00	0.00	0.05	1.90
12/14/97 13:00	20.00	0.00	0.00	0.10	1.10

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP5A**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 16:50	20.30	0.00	0.00	0.00	83.90
11/29/97 18:00	20.00	0.00	0.00	0.00	13.30
12/1/97 16:04	20.80	0.00	0.00		6.00
12/3/97 14:19	20.20	0.00	0.00		9.80
12/4/97 19:52	20.60	0.00	0.00	0.00	3.20
12/5/97 11:41	20.80	0.00	0.00	0.00	0.90
12/6/97 13:50	20.70	0.00	0.00	0.00	0.60
12/7/97 13:55	20.30	0.00	0.00	0.00	0.30
12/8/97 13:46	20.60	0.00	0.00	0.00	0.60
12/9/97 14:05	20.40	0.00	0.00	0.00	0.30
12/10/97 14:35	20.80	0.00	0.00	0.00	0.00
12/11/97 19:53	20.00	0.00	0.00	0.00	1.50
12/12/97 13:04	20.20	0.00	0.00	0.00	0.90
12/14/97 14:21	20.00	0.00	0.00	0.00	1.80



**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP5B**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/27/97 16:36	20.30	0.00	0.00	0.00	83.90
11/29/97 18:10	20.00	0.00	0.00	0.00	19.00
12/1/97 17:03	20.80	0.20	0.00		2.00
12/3/97 14:40	20.10	0.00	0.00		5.40
12/4/97 20:19	20.70	0.00	0.00	0.00	1.50
12/5/97 12:07	20.80	0.00	0.00	0.00	0.60
12/6/97 14:05	20.70	0.00	0.00	0.00	0.60
12/7/97 14:15	20.50	0.00	0.00	0.00	0.30
12/8/97 14:05	20.70	0.00	0.00	0.00	0.30
12/9/97 14:20	20.40	0.00	0.00	0.00	0.30
12/10/97 14:55	20.80	0.00	0.00	0.00	0.00
12/11/97 20:10	19.90	0.00	0.00	0.00	2.40
12/12/97 13:26	20.00	0.00	0.00	0.00	0.90
12/14/97 14:54	19.90	0.00	0.00	0.00	1.1-1.8

**WURTSMITH AFB PILOT TESTING**  
**SITE SS08B**  
**SOIL GAS FIELD PARAMETER DATA FOR WELL MP6**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
11/29/97 18:35	20.10	0.00	0.00	0.00	11.40
12/1/97 17:22	20.60	0.20	0.00		2.00
12/6/97 14:15	20.70	0.00	0.00	0.00	16.50
12/7/97 14:30	20.60	0.00	0.00	0.00	6.70
12/8/97 14:20	20.70	0.00	0.00	0.00	4.50
12/9/97 14:35	20.50	0.00	0.00	0.00	3.50
12/10/97 15:10	20.70	0.00	0.00	0.00	2.40
12/11/97 20:22	20.00	0.00	0.00	0.00	1.10
12/12/97 13:47	20.00	0.00	0.00	0.09	2.80
12/14/97 15:18	20.10	0.00	0.00	0.08	4.0-4.8

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL GAS FIELD PARAMETER DATA FOR VAPOR IN**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
12/5/97 12:37	20.70	0.00	0.00	0.17	0.60
12/6/97 14:35	20.60	0.00	0.00	0.18	1.10
12/7/97 14:50	20.60	0.00	0.00	0.25	0.50
12/8/97 14:35	20.70	0.00	0.00	0.13	0.60
12/9/97 14:50	20.50	0.00	0.00	0.11	0.30
12/10/97 15:25	20.70	0.00	0.00	0.11	0.00

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL GAS FIELD PARAMETER DATA FOR VAPOR OUT**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
12/5/97 13:40	20.50	0.00	0.00	0.18	0.20
12/6/97 14:50	20.70	0.00	0.00	0.18	0.90
12/7/97 15:10	20.70	0.00	0.00	0.26	0.30
12/8/97 14:45	20.70	0.00	0.00	0.13	0.6-0.3
12/9/97 15:00	20.60	0.00	0.00	0.12	0.30
12/10/97 15:45	20.80	0.00	0.00	0.12	0.00

**WURTSMITH AFB PILOT TESTING  
SITE SS08B  
SOIL GAS FIELD PARAMETER DATA FOR AIR ONLY**

Date	%O2	%CO2	%CH4	%Helium	PID (ppm)
12/5/97 13:49	20.70	0.00	0.00	0.00	0.20
12/6/97 15:15	20.80	0.00	0.00	0.00	0.40
12/7/97 15:45	20.80	0.00	0.00	0.00	0.10
12/8/97 14:55	20.80	0.00	0.00	0.00	0.30
12/9/97 15:10	20.70	0.00	0.00	0.00	0.00
12/10/97 16:05	20.80	0.00	0.00	0.00	0.00

**WURTSMITH PILOT TESTING**  
**SS08**  
**VOC RESULTS FROM SUMMA CANNISTER SAMPLING**

Sample Name:		SVE Sample Port 1	SVE Sample Port 1 Duplicate	SVE Sample Port 1
Sample Date:		12/4/97	12/4/97	12/10/97
Sample Time:		11:20	11:20	16:30
Target Compounds	Units			
Freon 11	ppb v/v	5.4	6.3	ND<2.0
Freon113	ppb v/v	7.7 J	ND<4.0	ND<2.0
Methylene Chloride	ppb v/v	ND<2.0	ND<4.0	1.2 J
2-Butanone	ppb v/v	4.4 J	ND<20.0	ND<10.0
4-Methyl-2-Pentanone	ppb v/v	1.6 J	ND<8.0	ND<4.0
Ethylbenzene	ppb v/v	2.5	2.5	ND<2.0
m,p-Xylene	ppb v/v	6.8	5.2	ND<2.0
4-Ethyl Toluene	ppb v/v	2.3	ND<4.0	ND<2.0
1,3,5-Trimethylbenzene	ppb v/v	1.8 J	ND<4.0	ND<2.0
1,2,4-Trimethylbenzene	ppb v/v	7.8	11	1.5 J
<b>Tentatively Identified</b>				
1-Ethyl-2-methylcyclopentane	ppb v/v	10 NJ		
2-Methylhexane	ppb v/v	25 N	31 NJ	
2-Methylpentane	ppb v/v	13 N	18 NJ	
3-Methylhexane	ppb v/v	31 NJ		
4-Methylheptane	ppb v/v		39 NJ	
Butyl cyclohexane	ppb v/v	13 NJ		
C6 Unsaturated Hydrocarbon	ppb v/v	19 J	23 J	
C7 Unsaturated Hydrocarbon	ppb v/v			3.3 J
C8 Hydrocarbon	ppb v/v			3.8 J
C8 Hydrocarbon (3)	ppb v/v	54.6 J	75 J	
C8 Unsaturated Hydrocarbon	ppb v/v		12 J	
C9 Hydrocarbon	ppb v/v		17 J	
C10 Hydrocarbon	ppb v/v	8.8 J		
C10 Unsaturated Hydrocarbon	ppb v/v		24 J	
C11 Hydrocarbon	ppb v/v	12 J	16 J	
Cyclopentane	ppb v/v			3.0 NJ
Freon 142	ppb v/v	34 N	44 NJ	5.4 NJ
Hexane	ppb v/v	13 N	15 NJ	
Methylcyclohexane	ppb v/v	40 N	27 NJ	4.8 NJ
Methylcyclopentane	ppb v/v	14 N	16 NJ	
Propylcyclohexane	ppb v/v		24 NJ	
Sulfur Hexafluoride	ppb v/v			130 NJ
Unknown Hydrocarbon(2)	ppb v/v			8.5 J
<b>Total Volatiles (ppb v/v)</b>		<b>327.7</b>	<b>406.0</b>	<b>161.5</b>
<b>Key:</b>				
J = Estimated Value				
N = Tentatively Identified Compound				

**APPENDIX E**  
**LABORATORY ANALYTICAL DATA, CHAIN OF CUSTODY,**  
**AND DATA VERIFICATION AND VALIDATION**





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Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SU001 Lab Sample ID: 97C05418 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 26-Nov-1997 14:00

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	5	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	5	U
1,1,2-Trichloroethane	0.24	2.0	0.24	5	U
1,1-Dichloroethane	0.33	2.0	0.33	5	U
1,1-Dichloroethene	0.52	2.0	0.52	5	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	5	U
1,2,4-Trimethylbenzene	0.37	2.0	710	5	
1,2-Dibromoethane	0.37	2.0	0.37	5	U
1,2-Dichlorobenzene	0.22	2.0	0.22	5	U
1,2-Dichloroethane	0.37	2.0	0.37	5	U
1,2-Dichloropropane	0.34	2.0	0.34	5	U
1,3,5-Trimethylbenzene	0.40	2.0	240	5	
1,3-Dichlorobenzene	0.20	2.0	0.20	5	U
1,4-Dichlorobenzene	0.29	2.0	0.29	5	U
2-Butanone	1.2	10.0	1.2	5	U
2-Hexanone	0.67	4.0	0.67	5	U
4-Ethyl toluene	0.70	2.0	240	5	
4-Methyl-2-Pentanone	0.80	4.0	0.80	5	U
Acetone	1.1	10.0	1.1	5	U
Benzene	0.41	2.0	0.41	5	U
Benzyl Chloride	0.36	2.0	0.36	5	U
Bromodichloromethane	0.43	2.0	0.43	5	U
Bromoform	0.27	2.0	0.27	5	U
Bromomethane	0.53	2.0	0.53	5	U
Carbon Disulfide	0.61	10.0	0.61	5	U
Carbon Tetrachloride	0.35	2.0	0.35	5	U
Chlorobenzene	0.39	2.0	0.39	5	U
Chloroethane	1.4	4.0	1.4	5	U
Chloroform	0.35	2.0	0.35	5	U
Chloromethane	0.62	4.0	0.62	5	U
Dibromochloromethane	0.48	2.0	0.48	5	U

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Handwritten signature/initials: RC 2/3/98

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Report No.: 98AFO0002

Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SU001 Lab Sample ID: 97C05418 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 26-Nov-1997 14:00

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	5	U
Ethylbenzene	0.62	2.0	970	5	
Freon 113	0.16	2.0	0.16	5	U
Freon 114	0.70	2.0	0.70	5	U
Freon 11	0.20	2.0	0.20	5	U
Hexachlorobutadiene	1.9	4.0	1.9	5	U
Methylene Chloride	0.33	2.0	0.33	5	U
Styrene	0.27	2.0	0.27	5	U
Tetrachloroethene	0.44	2.0	0.44	5	U
Toluene	0.63	2.0	0.63	5	U
Trichloroethene	0.53	2.0	0.53	5	U
Vinyl Acetate	0.86	10.0	0.86	5	U
Vinyl Chloride	0.58	2.0	0.58	5	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	5	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	5	U
m,p-Xylene	0.80	2.0	2000	5	
o-Xylene	0.61	2.0	0.61	5	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	5	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	5	U

VG  
C/C  
C/C

Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
RC 2/3/98

Analytical Method: TO-14                      Preparatory Method:                      AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SU102      Lab Sample ID: 97C05419      Matrix: AIR

**% Solids:** Initial Calibration ID:

**Date Received:** 21-Nov-1997 00:00      **Date Extracted:**      **Date Analyzed:** 26-Nov-1997 20:50

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	10	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	10	U
1,1,2-Trichloroethane	0.24	2.0	0.24	10	U
1,1-Dichloroethane	0.33	2.0	0.33	10	U
1,1-Dichloroethene	0.52	2.0	0.52	10	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	10	U
1,2,4-Trimethylbenzene	0.37	2.0	2300	10	
1,2-Dibromoethane	0.37	2.0	0.37	10	U
1,2-Dichlorobenzene	0.22	2.0	0.22	10	U
1,2-Dichloroethane	0.37	2.0	0.37	10	U
1,2-Dichloropropane	0.34	2.0	0.34	10	U
1,3,5-Trimethylbenzene	0.40	2.0	690	10	
1,3-Dichlorobenzene	0.20	2.0	0.20	10	U
1,4-Dichlorobenzene	0.29	2.0	0.29	10	U
2-Butanone	1.2	10.0	1.2	10	U
2-Hexanone	0.67	4.0	0.67	10	U
4-Ethyl toluene	0.70	2.0	700	10	
4-Methyl-2-Pentanone	0.80	4.0	0.80	10	U
Acetone	1.1	10.0	1.1	10	U
Benzene	0.41	2.0	1800	10	
Benzyl Chloride	0.36	2.0	0.36	10	U
Bromodichloromethane	0.43	2.0	0.43	10	U
Bromoform	0.27	2.0	0.27	10	U
Bromomethane	0.53	2.0	0.53	10	U
Carbon Disulfide	0.61	10.0	0.61	10	U
Carbon Tetrachloride	0.35	2.0	0.35	10	U
Chlorobenzene	0.39	2.0	0.39	10	U
Chloroethane	1.4	4.0	1.4	10	U
Chloroform	0.35	2.0	0.35	10	U
Chloromethane	0.62	4.0	0.62	10	U
Dibromochloromethane	0.48	2.0	0.48	10	U

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Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS06SU102 Lab Sample ID: 97C05419 Matrix: AIR  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 26-Nov-1997 20:50  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	10	U
Ethylbenzene	0.62	2.0	2300	10	
Freon 113	0.16	2.0	0.16	10	U
Freon 114	0.70	2.0	0.70	10	U
Freon 11	0.20	2.0	0.20	10	U
Hexachlorobutadiene	1.9	4.0	1.9	10	U
Methylene Chloride	0.33	2.0	0.33	10	U
Styrene	0.27	2.0	0.27	10	U
Tetrachloroethene	0.44	2.0	0.44	10	U
Toluene	0.63	2.0	0.63	10	U
Trichloroethene	0.53	2.0	0.53	10	U
Vinyl Acetate	0.86	10.0	0.86	10	U
Vinyl Chloride	0.58	2.0	0.58	10	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	10	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	10	U
m,p-Xylene	0.80	2.0	4700	10	
o-Xylene	0.61	2.0	0.61	10	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	10	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	10	U

Comments:

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Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS06SUAB1 Lab Sample ID: 97C05420 Matrix: AIR  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Nov-1997 00:24  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	3.4	1	
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	1.2	1	J
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	1.2	1	U
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	1.9	1	J
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	1.1	1	U
Benzene	0.41	2.0	1.7	1	J
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

0024

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Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SUAB1 Lab Sample ID: 97C05420 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Nov-1997 00:24

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	8.0	1	
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	0.20	1	U
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	0.33	1	U
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	0.63	1	U
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	19.	1	
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

Comments:

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Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SUTB1 Lab Sample ID: 97C05421 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Nov-1997 01:09

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	0.37	1	U
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	0.40	1	U
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	1.2	1	U
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	0.70	1	U
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	1.1	1	U
Benzene	0.41	2.0	0.41	1	U
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFO0002

Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06SUTB1 Lab Sample ID: 97C05421 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 21-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Nov-1997 01:09

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	0.62	1	U
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	0.20	1	U
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	0.33	1	U
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	0.63	1	U
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	1.8	1	J
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

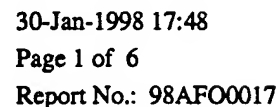
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Comments:

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Concentration Units (ug/L or mg/KG dry weight): PPB V/V

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

30-Jan-1998 17:48  
Page 1 of 6  
Report No.: 98AFO0017

Analytical Method: TO-14 Preparatory Method: \_\_\_\_\_ AAB #: G97BT00H  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS06S<sup>U</sup>002 Lab Sample ID: 97125019 Matrix: AIR  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 26-Nov-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 26-Nov-1997 23:39  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	.45	2.0	.45	10	U
Ethylbenzene	.62	2.0	21000	10	
Freon 113	.16	2.0	.16	10	U
Freon 114	.70	2.0	.70	10	U
Freon 11	.20	2.0	.20	10	U
Hexachlorobutadiene	1.9	4.0	1.9	10	U
Methylene Chloride	.33	2.0	.33	10	U
Styrene	.27	2.0	.27	10	U
Tetrachloroethene	.44	2.0	.44	10	U
Toluene	.63	2.0	.63	10	U
Trichloroethene	.53	2.0	.53	10	U
Vinyl Acetate	.86	10.0	.86	10	U
Vinyl Chloride	.58	2.0	.58	10	U
cis-1,2-Dichloroethene	.29	2.0	.29	10	U
cis-1,3-Dichloropropene	.34	2.0	.34	10	U
m,p-Xylene	.80	2.0	46000	10	
o-Xylene	.61	2.0	3200	10	
trans-1,2-Dichloroethene	.64	2.0	.64	10	U
trans-1,3-Dichloropropene	.44	2.0	.44	10	U

Comments:

RC 2/3/98

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: NOV26

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061DGW001 Lab Sample ID: 97C05468

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 11/26/97 Date Extracted: N/A Date Analyzed: 12/6/97 12:43

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1600	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061EGW001      Lab Sample ID: 97C05469

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 12:50

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1500	1	

VG  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061<sup>FG</sup>DFW001      Lab Sample ID: 97C05470  
*DFW*

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 12:58

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	5400	1	

*VQ*  
*J*

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. = *J*

*RC 2/3/98*

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062DGW001      Lab Sample ID: 97C05471

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:06

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	5100	1	

VQ  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. = J

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062EGW001      Lab Sample ID: 97C05472

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:14

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	5500	1	

VG  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. = J

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062FGW001      Lab Sample ID: 97C05473

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:22

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	3300	1	

*VQ*  
*J*

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. = J

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063DGW001      Lab Sample ID: 97C05474

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:30

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	3600	1	

VQ  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. =J

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063DGW101      Lab Sample ID: 97C05475

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:37

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	2800	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063EGW001      Lab Sample ID: 97C05476

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:45

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	4000	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064EGW001      Lab Sample ID: 97C05477

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 13:53

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	98	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064DGW001      Lab Sample ID: 97C05494

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:17

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	990 <del>ND</del>	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065DGW001      Lab Sample ID: 97C05478

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:01

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	3300	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV26

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065EGW001      Lab Sample ID: 97C05479

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/26/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:09

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	450	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061DGW002      Lab Sample ID: 97C05480

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:40

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	660	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061EGW002      Lab Sample ID: 97C05481

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:48

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1600	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061FGW002      Lab Sample ID: 97C05482

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 14:56

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1500	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062DGW002      Lab Sample ID: 97C05483

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:04

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	3800	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062FGW002      Lab Sample ID: 97C05484

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:12

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1200	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063DGW101      Lab Sample ID: 97C05485

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:20

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1200	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063EGW002      Lab Sample ID: 97C05486

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:28

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	2400	1	

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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: NOV27

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064DGW003 Lab Sample ID: 97C05487

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 11/27/97 Date Extracted: N/A Date Analyzed: 12/6/97 15:36

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	680	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: NOV27

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064EGW002 Lab Sample ID: 97C05488

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 11/27/97 Date Extracted: N/A Date Analyzed: 12/6/97 15:43

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1300	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064DGW102      Lab Sample ID: 97C05489

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:51

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1400	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RL 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065DGW002      Lab Sample ID: 97C05490

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 15:59

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	76	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065EGW002      Lab Sample ID: 97C05491

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 16:07

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	18	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N193SGW001      Lab Sample ID: 97C05492

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 16:15

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
UJ

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: NOV27

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062EGW002      Lab Sample ID: 97C05493

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 11/27/97      Date Extracted: N/A      Date Analyzed: 12/6/97 16:23

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1500	1	

V6  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061DGW003      Lab Sample ID: 97C05495

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 16:46

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1200	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC02

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061EGW003 Lab Sample ID: 97C05496

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 2 December 1997 Date Extracted: N/A Date Analyzed: 12/6/97 16:54

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	4700	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

RC 213/96

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061EGW103      Lab Sample ID: 97C05497

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:02

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	2400	1	

VQ  
J.

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

R ( 2/3/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N061FGW003      Lab Sample ID: 97C05498

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:10

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	3300	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062DGW003      Lab Sample ID: 97C05499

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:18

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1700	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062EGW003      Lab Sample ID: 97C05500

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:26

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	2600	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N062FGW003      Lab Sample ID: 97C05501

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:33

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	✓ 810 2400	1	

by 4/24/98

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RL 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063DGW003      Lab Sample ID: 97C05502

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:41

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	2000	1	

V6  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N063EGW003      Lab Sample ID: 97C05503

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:49

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	4800	1	

VK  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: In the original analysis this sample showed a value above the high standard. Attempted dilution indicated loss of most of the SF<sub>6</sub> into the headspace in vial created by removal of original analytical aliquot. The reported result is an extrapolation of the original data above the level of the high standard. This value should be treated as semi-quantitative. (J)

QC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064DGW003      Lab Sample ID: 97C05504

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 17:57

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1000	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/2/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N064EGW003      Lab Sample ID: 97C05505

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 18:05

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	460	1	

*Handwritten:* J/V

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

*Handwritten:* RC 2/3/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC02

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065DGW003 Lab Sample ID: 97C05506

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 2 December 1997 Date Extracted: N/A Date Analyzed: 12/6/97 18:13

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	91	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC02

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065DGW003      Lab Sample ID: 97C05507

% Solids: N/A      Initial Calibration ID: SF6-1206

Date Received: 2 December 1997      Date Extracted: N/A      Date Analyzed: 12/6/97 18:20

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	89	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RL 2/3/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC02

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N065EGW003 Lab Sample ID: 97C05508

% Solids: N/A Initial Calibration ID: SF6-1206

Date Received: 2 December 1997 Date Extracted: N/A Date Analyzed: 12/6/97 18:28

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	13	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/3/98

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B1EGW001 Lab Sample ID: 97C05542 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 12:06  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.311	1	U
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	8.3	1	
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	94.5	76.0-114.	
4-BromoFluorobenzene	96.9	86.0-115.	
Toluene-D8	101.	88.0-110.	

Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
RC 2/4/98

0293

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B2EGW001 Lab Sample ID: 97C05543 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 13:39  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.60	1	J
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	0.318	1	U
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	94.2	76.0-114.	
4-BromoFluorobenzene	88.8	86.0-115.	
Toluene-D8	96.4	88.0-110.	

Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
RC 2/4/98

0294

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B4DGW001 Lab Sample ID: 97C05544 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 14:10  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.311	1	U
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	0.318	1	U
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	97.5	76.0-114.	
4-BromoFluorobenzene	95.2	86.0-115.	
Toluene-D8	101.	88.0-110.	

Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*RC 2/8/98*

0295

Field Dup.

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B5DGW101 Lab Sample ID: 97C05547 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 15:43  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.311	1	U
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	0.318	1	U
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

VQ  
↓

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	92.4	76.0-114.	
4-BromoFluorobenzene	91.7	86.0-115.	
Toluene-D8	97.9	88.0-110.	

Comments:

RC 2/4/98

0298

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B5DGW001 Lab Sample ID: 97C05546 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 15:12  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.311	1	U
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	4.9	1	
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	96.7	76.0-114.	
4-BromoFluorobenzene	95.7	86.0-115.	
Toluene-D8	101.	88.0-110.	

Comments:

\_\_\_\_\_ *RC 2/5/98* \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

0297



Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B4DTB001 Lab Sample ID: 97C05545 Matrix: NQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 14:41  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	0.311	1	U
Ethylbenzene	0.296	1	0.296	1	U
Toluene	0.318	1	5.2	1	
m,p-Xylene	0.622	1	0.622	1	U
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	95.7	76.0-114.	
4-BromoFluorobenzene	97.6	86.0-115.	
Toluene-D8	101.	88.0-110.	

Comments:

RC 2/4/98

0296

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NH89SGW001 Lab Sample ID: 97C05548 Matrix: WG

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 16:14

Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	1.1	1	
Ethylbenzene	0.296	1	520	25	D
Toluene	0.318	1	270	25	D
m,p-Xylene	0.622	1	1600	50	D
o-Xylene	0.321	1	150	25	D

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	103.	76.0-114.	
4-BromoFluorobenzene	74.2	86.0-115.	
Toluene-D8	160.	88.0-110.	

Low

Comments:

RC 2/4/98

0299

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NH90SGW001 Lab Sample ID: 97C05549 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 16:45  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	(210)	25	D
Ethylbenzene	0.296	1	(370)	25	D
Toluene	0.318	1	0.318	1	U
m,p-Xylene	0.622	1	(1000)	25	D
o-Xylene	0.321	1	(0.92)	1	J

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Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	100.	76.0-114.	
4-BromoFluorobenzene	(77.4)	86.0-115.	
Toluene-D8	102.	88.0-110.	

low

Comments:

RC 254/98

0300

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NH95SGW001 Lab Sample ID: 97C05550 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 17:16  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	(24)	1	
Ethylbenzene	0.296	1	(1.2)	1	
Toluene	0.318	1	0.318	1	U
m,p-Xylene	0.622	1	(2.7)	1	
o-Xylene	0.321	1	0.321	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	95.6	76.0-114.	
4-BromoFluorobenzene	97.5	86.0-115.	
Toluene-D8	99.7	88.0-110.	

Comments:

RC 2/4/98

0301

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: N8B1EGW001 Lab Sample ID: 97C05542MS Matrix: WG

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 12:37

Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	9.42	1	
Ethylbenzene	0.296	1	9.95	1	
Toluene	0.318	1	17.6	1	
m,p-Xylene	0.622	1	20.	1	
o-Xylene	0.321	1	9.7	1	

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	94.8	76.0-114.	
4-BromoFluorobenzene	95.6	86.0-115.	
Toluene-D8	100.	88.0-110.	

Comments:

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RC 2/5/98

0304

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G97CC00C  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N8B1EGW001 Lab Sample ID: 97C05542MSD Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 11-Dec-1997 13:08  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.311	1	9.31	1	
Ethylbenzene	0.296	1	9.78	1	
Toluene	0.318	1	17.1	1	
m,p-Xylene	0.622	1	20.	1	
o-Xylene	0.321	1	9.5	1	

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	94.9	76.0-114.	
4-BromoFluorobenzene	95.5	86.0-115.	
Toluene-D8	99.3	88.0-110.	

Comments:

RC 2/4/98

0305

Analytical Method: T0-14      Preparatory Method: \_\_\_\_\_      AAB #: G97CH024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS8BS-001      Lab Sample ID: 97C05590      Matrix: AIR

% Solids: Initial Calibration ID:

Date Received: 05-Dec-1997 00:00      Date Extracted:      Date Analyzed: 16-Dec-1997 18:12

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	7.8	1	
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	1.8	1	J
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	4.4	1	J
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	2.3	1	
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	7.7	1	J
Benzene	0.41	2.0	0.41	1	U
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

0312

Analytical Method: T0-14      Preparatory Method:      AAB #: G97CH024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS8BS4001      Lab Sample ID: 97C05590      Matrix: AIR

**% Solids:** Initial Calibration ID:

**Date Received:** 05-Dec-1997 00:00      **Date Extracted:**      **Date Analyzed:** 16-Dec-1997 18:12

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	2.5	1	
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	5.4	1	
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	0.33	1	U
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	1.6	1	J
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	6.8	1	
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

**Comments:**



Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS8BS<sup>U</sup>101 Lab Sample ID: 97C05591 Matrix: AIR  
*2/14/98*  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 18:56  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	2	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	2	U
1,1,2-Trichloroethane	0.24	2.0	0.24	2	U
1,1-Dichloroethane	0.33	2.0	0.33	2	U
1,1-Dichloroethene	0.52	2.0	0.52	2	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	2	U
1,2,4-Trimethylbenzene	0.37	2.0	11.	2	
1,2-Dibromoethane	0.37	2.0	0.37	2	U
1,2-Dichlorobenzene	0.22	2.0	0.22	2	U
1,2-Dichloroethane	0.37	2.0	0.37	2	U
1,2-Dichloropropane	0.34	2.0	0.34	2	U
1,3,5-Trimethylbenzene	0.40	2.0	0.40	2	U
1,3-Dichlorobenzene	0.20	2.0	0.20	2	U
1,4-Dichlorobenzene	0.29	2.0	0.29	2	U
2-Butanone	1.2	10.0	1.2	2	U
2-Hexanone	0.67	4.0	0.67	2	U
4-Ethyl toluene	0.70	2.0	0.70	2	U
4-Methyl-2-Pentanone	0.80	4.0	0.80	2	U
Acetone	1.1	10.0	1.1	2	U
Benzene	0.41	2.0	0.41	2	U
Benzyl Chloride	0.36	2.0	0.36	2	U
Bromodichloromethane	0.43	2.0	0.43	2	U
Bromoform	0.27	2.0	0.27	2	U
Bromomethane	0.53	2.0	0.53	2	U
Carbon Disulfide	0.61	10.0	0.61	2	U
Carbon Tetrachloride	0.35	2.0	0.35	2	U
Chlorobenzene	0.39	2.0	0.39	2	U
Chloroethane	1.4	4.0	1.4	2	U
Chloroform	0.35	2.0	0.35	2	U
Chloromethane	0.62	4.0	0.62	2	U
Dibromochloromethane	0.48	2.0	0.48	2	U

0314

*RC 2/4/98*

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFO0006

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS8BS<sup>U</sup>101 Lab Sample ID: 97C05591 Matrix: AIR  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 18:56  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	2	U
Ethylbenzene	0.62	2.0	2.5	2	
Freon 113	0.16	2.0	0.16	2	U
Freon 114	0.70	2.0	0.70	2	U
Freon 11	0.20	2.0	6.3	2	
Hexachlorobutadiene	1.9	4.0	1.9	2	U
Methylene Chloride	0.33	2.0	0.33	2	U
Styrene	0.27	2.0	0.27	2	U
Tetrachloroethene	0.44	2.0	0.44	2	U
Toluene	0.63	2.0	0.63	2	U
Trichloroethene	0.53	2.0	0.53	2	U
Vinyl Acetate	0.86	10.0	0.86	2	U
Vinyl Chloride	0.58	2.0	0.58	2	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	2	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	2	U
m,p-Xylene	0.80	2.0	5.2	2	
o-Xylene	0.61	2.0	0.61	2	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	2	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	2	U

Comments:

RC 2/4/98

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFO0006

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS8BS<sup>U</sup>VAB1 Lab Sample ID: 97C05592 Matrix: AIR  
*AS- 2/16/98* Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 19:40  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	0.37	1	U
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	0.40	1	U
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	1.2	1	U
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	0.70	1	U
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	1.1	1	U
Benzene	0.41	2.0	0.41	1	U
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFO0006

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS8BS<sup>U</sup>AB1 Lab Sample ID: 97C05592 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 19:40

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	0.62	1	U
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	0.20	1	U
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	0.33	1	U
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	0.63	1	U
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	0.80	1	U
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

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Comments:

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RESULTS

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Report No.: 98AFO0006

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS8BS<sup>U</sup>VTB1 Lab Sample ID: 97C05593 Matrix: AIR  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 20:24  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	0.37	1	U
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	0.40	1	U
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	1.2	1	U
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	0.70	1	U
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	1.1	1	U
Benzene	0.41	2.0	0.41	1	U
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

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RESULTS

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Report No.: 98AFO0006

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: NSS8BS<sup>U</sup>TB1 Lab Sample ID: 97C05593 Matrix: AIR  
*182 2/16/98*  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 05-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 20:24  
Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	0.62	1	U
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	0.20	1	U
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	0.33	1	U
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	0.63	1	U
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	0.80	1	U
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

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Comments:

*RC 2/9/98*

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC09

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1CGW001 Lab Sample ID: 97C05599

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 12:58

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	160	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1DGW001      Lab Sample ID: 97C05600

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 13:08

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	680	1	

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J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC09

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1<sup>D</sup>CGW101 Lab Sample ID: 97C05601  
27 4/21/98

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 13:16

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	430	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/9/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1EGW001      Lab Sample ID: 97C05602

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 13:23

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	650	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2CGW001      Lab Sample ID: 97C05603

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 13:31

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	260	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC09

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2DGW001 Lab Sample ID: 97C05604

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 13:39

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	200	1	

VJ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2EGW001      Lab Sample ID: 97C05605

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 13:46

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
UJ

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3CGW001      Lab Sample ID: 97C05606

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 13:54

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	84	1	

VQ  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3DGW001      Lab Sample ID: 97C05607

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 14:02

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	430	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4CGW001      Lab Sample ID: 97C05608

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 14:10

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	110	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98



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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4CGW101      Lab Sample ID: 97C05609

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 14:18

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	140	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4DGW001      Lab Sample ID: 97C05610

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 14:25

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	150	1	

VJ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC09

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5CGW001 Lab Sample ID: 97C05611

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 14:33

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
UJ

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC09

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5DGW001      Lab Sample ID: 97C05612

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 14:41

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5CGW002      Lab Sample ID: 97C05646

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:04

Concentration Units:  $\mu\text{g/L}$

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	62	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5DGW002      Lab Sample ID: 97C05647

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:12

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	180	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4CGW002      Lab Sample ID: 97C05648

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:20

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	80	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4DGW002      Lab Sample ID: 97C05649

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:27

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	170	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3CGW002      Lab Sample ID: 97C05650

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:35

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	220	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3DGW002      Lab Sample ID: 97C05651

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:43

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	290	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2CGW002      Lab Sample ID: 97C05652

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:51

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	210	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2DGW002      Lab Sample ID: 97C05653

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 15:58

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	290	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2EGW002      Lab Sample ID: 97C05654

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 16:06

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VJ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2EGW102      Lab Sample ID: 97C05655

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 16:14

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
UJ

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC13

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1CGW002 Lab Sample ID: 97C05656

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 16:22

Concentration Units:  $\mu\text{g/L}$

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	93	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC13

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1DGW002      Lab Sample ID: 97C05657

% Solids: N/A      Initial Calibration ID: SF6-1230

Date Received: 12/11/97      Date Extracted: N/A      Date Analyzed: 12/30/97 16:29

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	120	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC13

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1EGW002 Lab Sample ID: 97C05658

% Solids: N/A Initial Calibration ID: SF6-1230

Date Received: 12/11/97 Date Extracted: N/A Date Analyzed: 12/30/97 16:37

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	140	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5CGW003      Lab Sample ID: 97C05793

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 12:58

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	140	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B5DGW003      Lab Sample ID: 97C05794

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:06

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	450	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4CGW003      Lab Sample ID: 97C05795

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:13

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	210	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B4DGW003      Lab Sample ID: 97C05796

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:21

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	540	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

R( 2)4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3CGW003      Lab Sample ID: 97C05797

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:29

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	55	1	

VK  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC14

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3CGW103 Lab Sample ID: 97C05798

% Solids: N/A Initial Calibration ID: SF6-0106

Date Received: 12/17/97 Date Extracted: N/A Date Analyzed: 01/06/98 13:36

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	190	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B3DGW003      Lab Sample ID: 97C05799

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:44

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	370	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98



AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2CGW003      Lab Sample ID: 97C05800

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:52

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	560	1	

VJ  
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Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2DGW003      Lab Sample ID: 97C05801

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 13:59

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	510	1	

VG  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom Preparatory Method: N/A SDG#: DEC14

Lab Name: DataChem Laboratories Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B2EGW003 Lab Sample ID: 97C05802

% Solids: N/A Initial Calibration ID: SF6-0106

Date Received: 12/17/97 Date Extracted: N/A Date Analyzed: 01/06/98 14:07

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	ND	1	

VQ  
UJ

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem.Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1CGW003      Lab Sample ID: 97C05803

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 14:15

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	380	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1DGW003      Lab Sample ID: 97C05804

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 14:22

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	1400	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

REC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2

Analytical Method: Custom      Preparatory Method: N/A      SDG#: DEC14

Lab Name: DataChem Laboratories      Contract #: F41624-94-D-8066/D0007

Field Sample ID: N8B1EGW003      Lab Sample ID: 97C05805

% Solids: N/A      Initial Calibration ID: SF6-0106

Date Received: 12/17/97      Date Extracted: N/A      Date Analyzed: 01/06/98 14:30

Concentration Units: µg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Sulfur Hexafluoride	N/A	32	970	1	

VQ  
J

Surrogate	Recovery	Control Limits	Qualifier
N/A	N/A	N/A	N/A

Internal Std	Qualifier
N/A	N/A

Comments: None.

RC 2/4/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Page 3 of 6  
Report No.: 98AFO0009

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS8BSU002 Lab Sample ID: 97C05680 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 15-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 21:08

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.27	2.0	0.27	1	U
1,1,2,2-Tetrachloroethane	0.47	2.0	0.47	1	U
1,1,2-Trichloroethane	0.24	2.0	0.24	1	U
1,1-Dichloroethane	0.33	2.0	0.33	1	U
1,1-Dichloroethene	0.52	2.0	0.52	1	U
1,2,4-Trichlorobenzene	1.5	4.0	1.5	1	U
1,2,4-Trimethylbenzene	0.37	2.0	1.5	1	J
1,2-Dibromoethane	0.37	2.0	0.37	1	U
1,2-Dichlorobenzene	0.22	2.0	0.22	1	U
1,2-Dichloroethane	0.37	2.0	0.37	1	U
1,2-Dichloropropane	0.34	2.0	0.34	1	U
1,3,5-Trimethylbenzene	0.40	2.0	0.40	1	U
1,3-Dichlorobenzene	0.20	2.0	0.20	1	U
1,4-Dichlorobenzene	0.29	2.0	0.29	1	U
2-Butanone	1.2	10.0	1.2	1	U
2-Hexanone	0.67	4.0	0.67	1	U
4-Ethyl toluene	0.70	2.0	0.70	1	U
4-Methyl-2-Pentanone	0.80	4.0	0.80	1	U
Acetone	1.1	10.0	1.1	1	U
Benzene	0.41	2.0	0.41	1	U
Benzyl Chloride	0.36	2.0	0.36	1	U
Bromodichloromethane	0.43	2.0	0.43	1	U
Bromoform	0.27	2.0	0.27	1	U
Bromomethane	0.53	2.0	0.53	1	U
Carbon Disulfide	0.61	10.0	0.61	1	U
Carbon Tetrachloride	0.35	2.0	0.35	1	U
Chlorobenzene	0.39	2.0	0.39	1	U
Chloroethane	1.4	4.0	1.4	1	U
Chloroform	0.35	2.0	0.35	1	U
Chloromethane	0.62	4.0	0.62	1	U
Dibromochloromethane	0.48	2.0	0.48	1	U

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RC 2/5/98

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFO0009

Analytical Method: T0-14 Preparatory Method: \_\_\_\_\_ AAB #: G97CH024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS8BSU002 Lab Sample ID: 97C05680 Matrix: AIR

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 15-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 16-Dec-1997 21:08

Concentration Units (ug/L or mg/KG dry weight): PPB V/V

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Dichlorodifluoromethane	0.45	2.0	0.45	1	U
Ethylbenzene	0.62	2.0	0.62	1	U
Freon 113	0.16	2.0	0.16	1	U
Freon 114	0.70	2.0	0.70	1	U
Freon 11	0.20	2.0	0.20	1	U
Hexachlorobutadiene	1.9	4.0	1.9	1	U
Methylene Chloride	0.33	2.0	1.2	1	J
Styrene	0.27	2.0	0.27	1	U
Tetrachloroethene	0.44	2.0	0.44	1	U
Toluene	0.63	2.0	0.63	1	U
Trichloroethene	0.53	2.0	0.53	1	U
Vinyl Acetate	0.86	10.0	0.86	1	U
Vinyl Chloride	0.58	2.0	0.58	1	U
cis-1,2-Dichloroethene	0.29	2.0	0.29	1	U
cis-1,3-Dichloropropene	0.34	2.0	0.34	1	U
m,p-Xylene	0.80	2.0	0.80	1	U
o-Xylene	0.61	2.0	0.61	1	U
trans-1,2-Dichloroethene	0.64	2.00	0.64	1	U
trans-1,3-Dichloropropene	0.44	2.0	0.44	1	U

Comments:

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*RL 2/5/98*

0557





FORM G (TYPE I)  
SINGLE METHOD ANALYSES

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01119822543980  
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QUALITY CONTROL DATA SHEET  
SURROGATE SUMMARY



G97CP024

Date Printed.....: 11-JAN-98 22:54

Client Name.....: AmTech Engineering, Inc.

Release Number.....: DEC17

DCL Analysis Group: G97CP024

Analysis Method....: OL-SW-8310-UV

Matrix.....: WATER

Reporting Units.....: ug/L

DCL Prep Group.....: G97CP024

Preparation Method: 3510

QC Limit Type.....: Method

Surrogate Recoveries

Surr. ID	Decafluorobiphenyl								
QC Limits	50.0/150.								
DCL Sample Number	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q
97C05791	46.3	50.0	92.6						
97C05792	45.8	50.0	91.6						
97C05793	44.8	50.0	89.6						
97E03655	48.0	50.0	96.0						
BL-143549-1	43.9	50.0	87.8						
QC-143549-1	43.0	50.0	86.0						
QC-143549-2	45.3	50.0	90.6						

Batch 97C-0507-01  
PNA'S

RC 2/5/98

0595



AFCEE  
INORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFI0001

Analytical Method: 7421 Preparatory Method: 3015 AAB #: G97CQ01M

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: N0393EB002 Lab Sample ID: 97C05791 Matrix: WQ

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 17-Dec-1997 00:00 Date Extracted: 23-Dec-1997 00:00 Date Analyzed: 23-Dec-1997 18:54

Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Lead	1.72	3.0	1.72	1	U

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Comments:

RC 2/5/98

0728



AFCEE  
INORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Page 2 of 8  
Report No.: 98AFI0001

Analytical Method: 7421 Preparatory Method: 3015 AAB #: G97CQ01M  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393GW001 Lab Sample ID: 97C05792 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 23-Dec-1997 00:00 Date Analyzed: 23-Dec-1997 19:10  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Lead	1.72	3.0	1.72	1	U

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Comments:

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0729



AFCEE  
INORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFI0001

Analytical Method: 7421 Preparatory Method: 3015 AAB #: G97CQ01M  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393GW101 Lab Sample ID: 97C05793 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 23-Dec-1997 00:00 Date Analyzed: 23-Dec-1997 19:13  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Lead	1.72	3.0	1.72	1	U

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Comments:

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Page 1 of 6  
Report No.: 98AFO0012

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K004  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393VE009 Lab Sample ID: 97C05783 Matrix: SO  
% Solids: 3.40 Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 25-Dec-1997 16:46  
Concentration Units (ug/L or mg/KG dry weight): mg/Kg

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.0030	0.052	0.0030	10	U
Ethylbenzene	0.0030	0.052	0.0030	10	U
methyl-t-butyl ether	0.0068	0.052	0.0068	10	U
Toluene	0.0068	0.052	0.0068	10	U
Total Xylenes	0.013	0.16	0.013	10	U

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Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	95.2	70.0-121.	
4-BromoFluorobenzene	102.	74.0-121.	
Toluene-D8	95.4	81.0-117.	

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Comments:

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RC 2/5/98

0781

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K004  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393VE109 Lab Sample ID: 97C05784 Matrix: SO  
% Solids: 4.60 Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 25-Dec-1997 17:17  
Concentration Units (ug/L or mg/KG dry weight): mg/Kg

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.0030	0.052	0.0030	10	U
Ethylbenzene	0.0031	0.052	0.37	10	
methyl-t-butyl ether	0.0068	0.052	0.0068	10	U
Toluene	0.0069	0.052	0.079	10	
Total Xylenes	0.013	0.16	1.9	10	

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Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	96.7	70.0-121.	
4-BromoFluorobenzene	103.	74.0-121.	
Toluene-D8	97.3	81.0-117.	

Comments:

RC 2/5/98

0782

Analytical Method: 8310 Preparatory Method: 3550 AAB #: G97CX015  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393VE009 Lab Sample ID: 97C05785 Matrix: SO  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 29-Dec-1997 00:00 Date Analyzed: 11-Jan-1998 01:15  
Concentration Units (ug/L or mg/KG dry weight): mg/KG

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Acenaphthene	0.0144	0.017	(0.016)	1	J
Acenaphthylene	0.0238	0.033	(0.39)	1	
Anthracene	0.000903	0.0017	(0.0013)	1	J
Benzo(a)anthracene	0.00104	0.0017	(0.0057)	1	
Benzo(a)pyrene	0.00160	0.0017	(0.0069)	1	
Benzo(b)fluoranthene	0.00161	0.0033	(0.0031)	1	J
Benzo(ghi)perylene	0.00272	0.0033	0.00272	1	U
Benzo(k)fluoranthene	0.00126	0.0017	0.00126	1	U
Chrysene	0.00135	0.0017	(0.0044)	1	
Dibenzo(a,h)anthracene	0.00240	0.0033	0.00240	1	U
Fluoranthrene	0.00220	0.0033	(0.016)	1	
Fluorene	0.00220	0.0033	(0.013)	1	
Indeno(1,2,3-cd)pyrene	0.00119	0.0017	0.00119	1	U
Naphthalene	0.0156	0.017	(4.0)	10	D
Phenanthrene	0.00104	0.0017	(0.0052)	1	
Pyrene	0.00142	0.0017	(0.0061)	1	

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Comments:

surrogate recovery DEBK-51%

RC 2/5/98

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FORM G (TYPE I)  
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET  
SURROGATE SUMMARY

Form RLIMS63G-V1.3  
01149823114391  
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G97CX015

Client Name.....: AmTech Engineering, Inc.  
Release Number.....: DEC17  
  
Matrix.....: SOIL  
Reporting Units.....: ug/g

Date Printed.....: 14-JAN-98 23:11

DCL Analysis Group: G97CX015  
Analysis Method....: OL-SW-8310-UV

DCL Prep Group.....: G97CX015  
Preparation Method: 3550

QC Limit Type.....: Method

Surrogate Recoveries

Surr. ID	Decafluorobiphenyl								
QC Limits	30.0/150.								
DCL Sample Number	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q
97C05785	0.856	1.67	51.3						
97C05785MS	0.497	1.67	29.8						
97C05785MSD	0.565	1.67	33.8						
97C05786	0.765	1.67	45.8						
BL-143640-1	1.52	1.67	91.0						
QC-143640-1	1.46	1.67	87.4						

29.8 ≈ 30 %

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AFCEE  
INORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFI0002

Analytical Method: 7421 Preparatory Method: 3051 AAB #: G97CQ01L  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393VE009 Lab Sample ID: 97C05787 Matrix: SO  
% Solids: 3.40 Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 23-Dec-1997 00:00 Date Analyzed: 23-Dec-1997 19:32  
Concentration Units (ug/L or mg/KG dry weight): mg/kg

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Lead	0.0595	0.311	4.99	1	

Comments:

*RC 2/5/98*

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INORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Report No.: 98AFI0002

Analytical Method: 7421 Preparatory Method: 3051 AAB #: G97CQ01L  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393VE109 Lab Sample ID: 97C05788 Matrix: SO  
% Solids: 4.60 Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 23-Dec-1997 00:00 Date Analyzed: 23-Dec-1997 19:45  
Concentration Units (ug/L or mg/KG dry weight): mg/kg

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Lead	0.0595	0.314	5.84	1	

VQ  
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Comments:

PC 2/5/98

1020



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Report No.: 98AFO0010

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K003  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393AB002 Lab Sample ID: 97C05781 Matrix: WQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 24-Dec-1997 12:35  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.144	5	0.144	1	U
Ethylbenzene	0.237	5	0.237	1	U
methyl-t-butyl ether	0.439	5	0.439	1	U
Toluene	0.183	5	0.183	1	U
Total Xylenes	0.153	15	0.153	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	98.3	76.0-114.	
Bromofluorobenzene	98.5	86.0-115.	
Toluene-D8	100.	88.0-110.	

Comments:

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R( 2)5/98

0563

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K003  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393TB002 Lab Sample ID: 97C05782 Matrix: WQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 24-Dec-1997 13:06  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.144	5	0.144	1	U
Ethylbenzene	0.237	5	0.237	1	U
methyl-t-butyl ether	0.439	5	0.439	1	U
Toluene	0.183	5	0.183	1	U
Total Xylenes	0.153	15	0.153	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	97.4	76.0-114.	
Bromofluorobenzene	97.8	86.0-115.	
Toluene-D8	98.4	88.0-110.	

Comments:

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*R( 2/5/98*

0564

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K003  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393GW001 Lab Sample ID: 97C05789 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 24-Dec-1997 13:36  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.144	5	(78.)	1	
Ethylbenzene	0.237	5	(150)	1	
methyl-t-butyl ether	0.439	5	0.439	1	U
Toluene	0.183	5	(20.)	1	
Total Xylenes	0.153	15	(250)	1	

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	98.1	76.0-114.	
Bromofluorobenzene	99.5	86.0-115.	
Toluene-D8	101.	88.0-110.	

Comments:

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RC 2/5/98

0565

*Field dup*

Analytical Method: 8260 Preparatory Method: \_\_\_\_\_ AAB #: G980K003  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393GW101 Lab Sample ID: 97C05790 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 24-Dec-1997 15:08  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Benzene	0.144	5	80.	1	
Ethylbenzene	0.237	5	150	1	
methyl-t-butyl ether	0.439	5	0.439	1	U
Toluene	0.183	5	21.	1	
Total Xylenes	0.153	15	260	1	

*VG*  
*1111*

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	99.3	76.0-114.	
Bromofluorobenzene	102.	86.0-115.	
Toluene-D8	102.	88.0-110.	

Comments:

*good field duplicate precision*

*RC 2/5/98*

0566

Analytical Method: 8310 Preparatory Method: 3510 AAB #: G97CP024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393EB002 Lab Sample ID: 97C05791 Matrix: WQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 22-Dec-1997 00:00 Date Analyzed: 31-Dec-1997 04:00  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Acenaphthene	0.452	0.50	0.452	1	U
Acenaphthylene	0.433	1.0	0.433	1	U
Anthracene	0.0259	0.050	0.0259	1	U
Benzo(a)anthracene	0.0265	0.050	0.0265	1	U
Benzo(a)pyrene	0.0325	0.050	0.0325	1	U
Benzo(b)fluoranthene	0.0467	0.10	0.0467	1	U
Benzo(ghi)perylene	0.0713	0.100	0.0713	1	U
Benzo(k)fluoranthene	0.0258	0.050	0.0258	1	U
Chrysene	0.0462	0.050	0.0462	1	U
Dibenzo(a,h)anthracene	0.0351	0.100	0.0351	1	U
Fluoranthene	0.0924	0.100	0.0924	1	U
Fluorene	0.0590	0.10	0.52	1	
Indeno(1,2,3-cd)pyrene	0.0351	80.050	0.0351	1	U
Naphthalene	0.252	0.50	0.252	1	U
Phenanthrene	0.0297	0.050	0.0297	1	U
Pyrene	0.0435	0.050	0.0435	1	U

Comments:

swagat - DFBP 93%

RL 2/5/98

0578



Analytical Method: 8310 Preparatory Method: 3510 AAB #: G97CP024

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: N0393GW001 Lab Sample ID: 97C05792 Matrix: WG

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 17-Dec-1997 00:00 Date Extracted: 22-Dec-1997 00:00 Date Analyzed: 31-Dec-1997 04:47

Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Acenaphthene	0.452	0.50	(2.4)	1	
Acenaphthylene	0.433	1.0	(0.89)	1	J
Anthracene	0.0259	0.050	0.0259	1	U
Benzo(a)anthracene	0.0265	0.050	0.0265	1	U
Benzo(a)pyrene	0.0325	0.050	0.0325	1	U
Benzo(b)fluoranthene	0.0467	0.10	0.0467	1	U
Benzo(ghi)perylene	0.0713	0.100	0.0713	1	U
Benzo(k)fluoranthene	0.0258	0.050	0.0258	1	U
Chrysene	0.0462	0.050	0.0462	1	U
Dibenzo(a,h)anthracene	0.0351	0.100	0.0351	1	U
Fluoranthene	0.0924	0.100	0.0924	1	U
Fluorene	0.0590	0.10	0.0590	1	U
Indeno(1,2,3-cd)pyrene	0.0351	80.050	0.0351	1	U
Naphthalene	0.252	0.50	(59)	10	D
Phenanthrene	0.0297	0.050	0.0297	1	U
Pyrene	0.0435	0.050	0.0435	1	U

Comments:

*average recovery OF BP = 92%*

*RC 2/5/98*

0579

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*Field dup*

Analytical Method: 8310 Preparatory Method: 3510 AAB #: G97CP024  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N0393GW101 Lab Sample ID: 97C05793 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 17-Dec-1997 00:00 Date Extracted: 22-Dec-1997 00:00 Date Analyzed: 31-Dec-1997 05:35  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Acenaphthene	0.452	0.50	2.6	1	
Acenaphthylene	0.433	1.0	0.433	1	U
Anthracene	0.0259	0.050	0.0259	1	U
Benzo(a)anthracene	0.0265	0.050	0.0265	1	U
Benzo(a)pyrene	0.0325	0.050	0.0325	1	U
Benzo(b)fluoranthene	0.0467	0.10	0.0467	1	U
Benzo(ghi)perylene	0.0713	0.100	0.0713	1	U
Benzo(k)fluoranthene	0.0258	0.050	0.0258	1	U
Chrysene	0.0462	0.050	0.0462	1	U
Dibenzo(a,h)anthracene	0.0351	0.100	0.0351	1	U
Fluoranthene	0.0924	0.100	0.0924	1	U
Fluorene	0.0590	0.10	0.0590	1	U
Indeno(1,2,3-cd)pyrene	0.0351	80.050	0.0351	1	U
Naphthalene	0.252	0.50	50	1	
Phenanthrene	0.0297	0.050	0.0297	1	U
Pyrene	0.0435	0.050	0.0435	1	U

Comments:

*Surrogate recovery DCRP - 90%*

*good precision for field duplicates*

*LC 2/5/98*

0580

Analytical Method: TCLP-8240 Preparatory Method: 1311 AAB #: G980G00J

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: NSS06CC001 Lab Sample ID: 97C05845 Matrix: SN

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 19-Dec-1997 00:00 Date Extracted: 25-Dec-1997 00:00 Date Analyzed: 27-Dec-1997 13:59

Concentration Units (ug/L or mg/KG dry weight): mg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1-Dichloroethylene	.005	.7	.005	1	U
1,2-Dichloroethane	.005	.5	.005	1	U
2-Butanone	.010	200	.010	1	U
Benzene	.005	.5	.005	1	U
Carbon Tetrachloride	.005	.5	.005	1	U
Chlorobenzene	.005	100	.005	1	U
Chloroform	.005	6	.005	1	U
Tetrachloroethylene	.005	.7	.005	1	U
Trichloroethylene	.005	.5	.005	1	U
Vinyl Chloride	.010	.2	.010	1	U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	101.	76.0-114.	
4-BromoFluorobenzene	98.3	86.0-115.	
Toluene-D8	100.	88.0-110.	

Comments:

RC 2/5/98

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Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092TB001 Lab Sample ID: 97C05846 Matrix: NQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 17:40  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1,2-Tetrachloroethane	0.176	5	0.176	1	U
1,1,1-Trichloroethane	0.261	5	0.261	1	U
1,1,2,2-Tetrachloroethane	0.184	5	0.184	1	U
1,1,2-Trichloroethane	0.211	5	0.211	1	U
1,1-Dichloroethane	0.105	5	0.105	1	U
1,1-Dichloroethene	0.245	5	0.245	1	U
1,1-Dichloropropene	0.221	5	0.221	1	U
1,2,3-Trichlorobenzene	0.173	5	0.173	1	U
1,2,3-Trichloropropane	0.158	5	0.158	1	U
1,2,4-Trichlorobenzene	0.211	5	0.211	1	U
1,2,4-Trimethylbenzene	0.130	5	0.130	1	U
1,2-Dibromo-3-Chloropropane	1.16	5	1.16	1	U
1,2-Dibromoethane	0.0770	5	0.0770	1	U
1,2-Dichlorobenzene	0.170	5	0.170	1	U
1,2-Dichloroethane	0.0674	5	0.0674	1	U
1,2-Dichloropropane	0.168	5	0.168	1	U
1,3,5-Trimethylbenzene	0.178	5	0.178	1	U
1,3-Dichlorobenzene	0.163	5	0.163	1	U
1,3-Dichloropropane	0.128	5	0.128	1	U
1,4-Dichlorobenzene	0.178	5	0.178	1	U
2,2-Dichloropropane	0.182	5	0.182	1	U
2-Butanone	2.56	5	2.56	1	U
2-Chlorotoluene	0.150	5	0.150	1	U
2-Hexanone	1.20	5	1.20	1	U
4-Chlorotoluene	0.110	5	0.110	1	U
4-Methyl-2-Pentanone	1.09	5	1.09	1	U
Acetone	2.88	5	2.88	1	U
Benzene	0.124	5	0.124	1	U
Bromobenzene	0.150	5	0.150	1	U
Bromochloromethane	0.150	5	0.150	1	U
Bromodichloromethane	0.112	5	0.112	1	U

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RC 2/5/98

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Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092TB001 Lab Sample ID: 97C05846 Matrix: NQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 17:40  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Bromoform	0.101	5	0.101	1	U
Bromomethane	0.229	5	0.229	1	U
Carbon Tetrachloride	0.201	5	0.201	1	U
Chlorobenzene	0.118	5	0.118	1	U
Chloroethane	0.489	5	0.489	1	U
Chloroform	0.140	5	0.140	1	U
Chloromethane	0.314	5	0.314	1	U
Dibromochloromethane	0.121	5	0.121	1	U
Dibromomethane	0.142	5	0.142	1	U
Dichlorodifluoromethane	0.933	5	0.933	1	U
Ethylbenzene	0.136	5	0.136	1	U
Hexachlorobutadiene	0.341	5	0.341	1	U
Isopropylbenzene	0.160	5	0.160	1	U
Methylene Chloride	0.141	5	0.91	1	J
Naphthalene	0.174	5	0.174	1	U
Styrene	0.130	5	0.130	1	U
Tetrachloroethene	0.180	5	0.180	1	U
Toluene	0.148	5	0.148	1	U
Trichloroethene	0.103	5	0.103	1	U
Trichlorofluoromethane	0.215	5	0.215	1	U
Vinyl Chloride	0.334	5	0.334	1	U
cis-1,2-Dichloroethene	0.141	5	0.141	1	U
m&p-Xylene	0.247	10	0.247	1	U
n-Butylbenzene	0.191	5	0.191	1	U
n-Propylbenzene	0.205	5	0.205	1	U
o-Xylene	0.107	5	0.107	1	U
p-Isopropyltoluene	0.170	5	0.170	1	U
sec-Butylbenzene	0.141	5	0.141	1	U
tert-Butylbenzene	0.130	5	0.130	1	U
trans-1,2-Dichloroethene	0.174	5	0.174	1	U

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RL 2/5/98

AFCEE FORM O-2

Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092TB001 Lab Sample ID: 97C05846 Matrix: NQ  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 17:40  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	90.4	76.0-114.	
Bromofluorobenzene	97.2	86.0-115.	
Toluene-D8	94.4	88.0-110.	



Comments:

*RI 2/5/98*

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AFCEE  
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Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092FT001 Lab Sample ID: 97C05847 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 18:12  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
1,1,1,2-Tetrachloroethane	0.176	5	0.176	1	U
1,1,1-Trichloroethane	0.261	5	0.261	1	U
1,1,2,2-Tetrachloroethane	0.184	5	0.184	1	U
1,1,2-Trichloroethane	0.211	5	0.211	1	U
1,1-Dichloroethane	0.105	5	0.105	1	U
1,1-Dichloroethene	0.245	5	0.245	1	U
1,1-Dichloropropene	0.221	5	0.221	1	U
1,2,3-Trichlorobenzene	0.173	5	0.173	1	U
1,2,3-Trichloropropane	0.158	5	0.158	1	U
1,2,4-Trichlorobenzene	0.211	5	0.211	1	U
1,2,4-Trimethylbenzene	0.130	5	0.130	1	U
1,2-Dibromo-3-Chloropropane	1.16	5	1.16	1	U
1,2-Dibromoethane	0.0770	5	0.0770	1	U
1,2-Dichlorobenzene	0.170	5	0.170	1	U
1,2-Dichloroethane	0.0674	5	0.0674	1	U
1,2-Dichloropropane	0.168	5	0.168	1	U
1,3,5-Trimethylbenzene	0.178	5	0.178	1	U
1,3-Dichlorobenzene	0.163	5	0.163	1	U
1,3-Dichloropropane	0.128	5	0.128	1	U
1,4-Dichlorobenzene	0.178	5	0.178	1	U
2,2-Dichloropropane	0.182	5	0.182	1	U
2-Butanone	2.56	5	2.56	1	U
2-Chlorotoluene	0.150	5	0.150	1	U
2-Hexanone	1.20	5	1.20	1	U
4-Chlorotoluene	0.110	5	0.110	1	U
4-Methyl-2-Pentanone	1.09	5	1.09	1	U
Acetone	2.88	5	2.88	1	U
Benzene	0.124	5	0.124	1	U
Bromobenzene	0.150	5	0.150	1	U
Bromochloromethane	0.150	5	0.150	1	U
Bromodichloromethane	0.112	5	0.112	1	U

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AFCEE FORM O-2  
RL 2/5/98

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Report No.: 98AF00016

Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X

Lab Name: DCHM Contract #: F41624-94-D-80

Field Sample ID: N5092FT001 Lab Sample ID: 97C05847 Matrix: WG

% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_

Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 18:12

Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Bromoform	0.101	5	0.101	1	U
Bromomethane	0.229	5	0.229	1	U
Carbon Tetrachloride	0.201	5	0.201	1	U
Chlorobenzene	0.118	5	0.118	1	U
Chloroethane	0.489	5	0.489	1	U
Chloroform	0.140	5	0.140	1	U
Chloromethane	0.314	5	0.314	1	U
Dibromochloromethane	0.121	5	0.121	1	U
Dibromomethane	0.142	5	0.142	1	U
Dichlorodifluoromethane	0.933	5	0.933	1	U
Ethylbenzene	0.136	5	0.136	1	U
Hexachlorobutadiene	0.341	5	0.341	1	U
Isopropylbenzene	0.160	5	0.160	1	U
Methylene Chloride	0.141	5	0.141	1	U
Naphthalene	0.174	5	0.174	1	U
Styrene	0.130	5	0.130	1	U
Tetrachloroethene	0.180	5	0.180	1	U
Toluene	0.148	5	0.148	1	U
Trichloroethene	0.103	5	0.103	1	U
Trichlorofluoromethane	0.215	5	0.215	1	U
Vinyl Chloride	0.334	5	0.334	1	U
cis-1,2-Dichloroethene	0.141	5	0.141	1	U
m&p-Xylene	0.247	10	0.247	1	U
n-Butylbenzene	0.191	5	0.191	1	U
n-Propylbenzene	0.205	5	0.205	1	U
o-Xylene	0.107	5	0.107	1	U
p-Isopropyltoluene	0.170	5	0.170	1	U
sec-Butylbenzene	0.141	5	0.141	1	U
tert-Butylbenzene	0.130	5	0.130	1	U
trans-1,2-Dichloroethene	0.174	5	0.174	1	U

VQ  
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RC 2/5/98

1084



Analytical Method: 8260A Preparatory Method: \_\_\_\_\_ AAB #: G980D00X  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092FT001 Lab Sample ID: 97C05847 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: \_\_\_\_\_ Date Analyzed: 27-Dec-1997 18:12  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-D4	91.1	76.0-114.	
Bromofluorobenzene	98.7	86.0-115.	
Toluene-D8	94.2	88.0-110.	



Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*AC 2/5/98*

1085



AFCEE  
INORGANIC ANALYSES DATA SHEET 2  
RESULTS

30-Jan-1998 12:56  
Page 1 of 6  
Report No.: 98AFI0003

Analytical Method: 6010 Preparatory Method: 3015 AAB #: G97CY005  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092FT001 Lab Sample ID: 97C05847 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: 30-Dec-1997 00:00 Date Analyzed: 06-Jan-1998 14:53  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Arsenic	65.2	300	65.2	1	U
Barium	3.44	20	36.	1	
Cadmium	2.55	5.0	2.55	1	U
Chromium	6.98	10	6.98	1	U
Lead	31.7	100	31.7	1	U
Selenium	39.3	300	39.3	1	U
Silver	4.50	10	4.50	1	U

Comments:

RC 2/5/98

1099

Analytical Method: 7470 Preparatory Method: 7470 AAB #: G97CY006  
Lab Name: DCHM Contract #: F41624-94-D-80  
Field Sample ID: N5092FT001 Lab Sample ID: 97C05847 Matrix: WG  
% Solids: \_\_\_\_\_ Initial Calibration ID: \_\_\_\_\_  
Date Received: 20-Dec-1997 00:00 Date Extracted: 30-Dec-1997 00:00 Date Analyzed: 30-Dec-1997 00:00  
Concentration Units (ug/L or mg/KG dry weight): ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
Mercury	0.0614	0.1	0.0614	1	U

VG  
U

Comments:

RL 2/5/98

1234

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547  
Phone (801) 266-7700 Web Page: [www.datachem.com](http://www.datachem.com)  
FAX (801) 268-9992 E-mail: [lab@datachem.com](mailto:lab@datachem.com)

**CHAIN OF CUSTODY**

97C-0452

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Treatability Study AF Installation Identification: WURTS

Location: Wurtsmith AFB, Oscoda, MI

1156  
1000

Contract No.: F41624-94-D-8066

Delivery Order No.: 0007

**AmTech**  
Engineering, Inc.
Sampler Name/Signature: *James A. [Signature]*

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
18-NOV-98	1815	* VOCs	NSS06SU001	N1	SV	101	GS	AV	NAK	97E05478 SUMMA	NONE
-98	1815		NSS06SU002	FD1	SV	101	GS	AV	AK	19	
-98	1817		NSS06SUAB1	AB1	NQ	100	AA	AC	AK	20	
-98	1817		NSS06SUTB1	TB1	NQ	001	AA	AC	AK	21	
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature)

Date/Time

11/19/97

114.5

Received By: (Signature)

Relinquished By: (Signature)

Date/Time

Received By: (Signature)

Relinquished By: (Signature)

Date/Time

Received for Laboratory By: (Signature)

Date/Time

11-21-97 18:15

Remarks: \* VOCs by TO-14 Method

Sample Sent To:

Lab:

Data Chem

Address:

960 West LeVoy Dr.

Phone:

Sadd Lake City

Freight Co.:

Utah, 84123-2547

Air Bill No.:

801 266 7700

FEDEX

801225960807 (Inv)

1792 Boxes

 For Questions about samples, contact A-SKANDIA (field phone) 517 739 4150  
 (field phone) 517 739 4150

 Send results to: Attn: Nadem Sidiq,  
 AmTech Engineering, Inc.  
 4343 Saguaro Trail  
 Indianapolis, IN 46268  
 Phone: (317) 291-7285  
 Fax: (317) 293-1440

RECEIVED

MAR 05 1998

 Distribution: White: (Original) Accompanies Shipment  
 Yellow: (Copy) Returns With Report  
 Pink: Sampler's Copy

AMTECH ENGINEERING, INC.

Case/50G: NOV26

97C-0464

97C 1626 20C

1007  
000

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test / Treatability Study AF Installation Identification: WURTS

Location: Wurtsmith AFB, Escoda, MI

Contract No.: F41624-94-D-8066

Sampler Name/Signature: *[Signature]*

Delivery Order No.: 2007

**AmTech**  
Engineering, Inc.

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
22 - Nov - 98	1240	SF <sub>6</sub> *	N061D GW001	N1	WL	000A	WG	PP	25.5 ft.	2, 40 ml Vial	Cool to 4°C
-98	1300		N061E GW001						32.5 ft.	2, 40 ml, G, Amber	
-98	1315		N061F GW001						39.5 ft.	2, 40 ml, G, Amber	
-98	1345		N062D GW001						25.5 ft.		
-98	1420		N062E GW001						32.5 ft.		
-98	1455		N062F GW001						39.5 ft.		
-98	1605		N063D GW001	↓					25.5 ft.		
-98	1605		N063D GW101	FD1					25.5 ft.		
-98	1645		N063E GW001	N1					32.5 ft.		
-98	1725		N064D GW001						25.5 ft.		
-98	1750		N064E GW001						32.5 ft.		
-98	1815		N065D GW001						25.5 ft.		
✓ -98	1840	✓	N065E GW001	✓	✓	✓	✓	✓	32.5 ft.	✓	✓

Relinquished By: (Signature) <i>[Signature]</i>	Date/Time 11/25/97	Received By: (Signature) <i>[Signature]</i>	Date/Time 11-26-97 11:00
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Relinquished By: (Signature) <i>[Signature]</i>	Date/Time 11/26/97 11:00	Received For Laboratory: (Signature) <i>[Signature]</i>	Date/Time 11-26-97 11:00

Remarks: \* Sulfur Hexafluoride by ASTM D5504 w/ Direct Injection

Send results to: Attn: Nadia S. Adams, AmTech Engineering, Inc., 4343 Saguaro Trail Indianapolis, IN 46268  
Phone: (317) 291-7285 Fax: (317) 293-1440

Sample Sent To: Scott Saulis  
Lab: Data Chem  
Address: 960 West LeVoy Dr., Salt Lake City, Utah, 84123-2547  
Phone: (801) 266-7700  
Freight Co.: FEDEX  
Air Bill No.: 801225860781

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact *[Signature]* (print sampler's name) at (field phone) 517 739 4180

97C-0465

97C 626 20C

Case/SDG: NOV 27

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Treatability Study

AF Installation Identification: WURIS

## AmTech Engineering, Inc.

Location: Wurtsmith AFB, Oscoda, MI

Contract No.: F41624-94-D-8066

Sampler Name/Signature: *Syed Jaffer*

Delivery Order No.: 0007

1158

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DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
24-NOV-97	1207	SF <sub>6</sub> *	N061DGW002	N1	WL	000A	WG	PP	25.5 ft.	2.40 ml G. Amber	Cool to 4°C
-98	1247		N061EGW002						32.5 ft.		
-98	1315		N061FGW002						39.5 ft.		
-98	1354		N062DGW002						25.5 ft.		
-98	1423		N062EGW002						32.5 ft.		
-98	1443		N062FGW002						39.5 ft.		
-98	1445		N063DGW002						25.5 ft.		
-98	1613		N063EGW002						32.5 ft.		
-98	1647		N064DGW002						25.5 ft.		
-98	1730		N064EGW002	V					32.5 ft.		
-98	1730		N064EGW102	FD1					32.5 ft.		
-98	1818		N065DGW002	N1					25.5 ft.		
-98	1902	V	N065EGW002	N1	V	Y	V	Y	32.5 ft.	V	V

Relinquished By: (Signature) <i>Sy Jaffer</i>	Date/Time: 11/25/97	Received By: (Signature)	Date/Time: 11-26-97
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Remarks: \*Sulfur Hexafluoride by ASTM D5504 w/DIRS Injection

Sample Sent To: Scott Salls

Lab: Data Chem

Address: 960 West LeVoy Dr.  
Salt Lake City  
Utah, 84123-2547

Phone: (801) 266-7700

Freight Co.: FEDEX

Air Bill No.: 801225860781

For Questions about samples, contact Skanda Rajah (print sampler's name) at (field phone) 517 739 4180

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy



# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Freatability Study

AF Installation Identification: WURTS

Location: Wurtsmith AFB, Oscoda, MI

Contract No.: F41624-94-D-8066

Sampler Name/Signature: [Signature]

Delivery Order No.: 0007

**AmTech**  
Engineering, Inc.

10259  
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DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
24-Nov-96	2030	VOCs *	NSS06SV002	N1	SV	000A	GIS	AV	NA #	SUNMA	NONE
-96			9725019						ft.	CAHISTER	
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
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-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) <u>[Signature]</u>	Date/Time 11/25/97, 1100	Received By: (Signature)	Date/Time 11/26/97, 1000
Relinquished By: (Signature) <u>[Signature]</u>	Date/Time	Received By: (Signature)	Date/Time
Relinquished By: (Signature) <u>[Signature]</u>	Date/Time	Received For Laboratory By: (Signature) <u>[Signature]</u>	Date/Time

Remarks: \* VOCs by TO-14 Method

Send results to: Attn: Nadene Siddiki  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Sample Sent To: Scott Saml  
Lab: Data Chem  
Address: 260 West LeVoy Dr  
Salt Lake City  
UT 84123-2547  
Phone: (801) 266-7700  
Freight Co.: FEDEX  
Air Bill No.: 801225860770

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy


For Questions about samples, contact SKANDA RAJAH (print sampler's name) at (field phone) (517) 739-4180

972 1626 20

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING**

AF Installation Identification: WVR-75

Contract No.: F41624-94-D-3066

**Sampler Name/Signature:** 

Delivery Order No.: 0007

**AmTech**  
Engineering, Inc.

0911 0000

[illegible]

**Distribution:**    **White:** (Original) Accompanies Shipment  
                          **Yellow:** (Copy) Returns With Report  
                          **Pink:**    Sampler's Copy

For Questions about samples, contact Skanda Rajan (print sampler's name) at  
(field phone) 517-739-4180 517

97C-0466

0971639 40C

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Plot Test / Treatability StudyAF Installation Identification: WURTS

1161

Location: Wurtsmith AFB, Oscoda, MIContract No.: FA1624-94-D-8066

10520

Sampler Name/Signature: Faisal AbedeenDelivery Order No.: 0007

## AmTech

  
Engineering, Inc.

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
28. Nov-98	1250	SF <sub>6</sub>	97C05495	N1	WL	000A	WG	PF	25.5 ft.	2,40m, Amber Cool to 4°C	
-98	1320		N061D GW003	N1							
-98	1320		97C05496	N1					32.5 ft.	61cm	
-98	1325		N061E GW003	FD1					32.5 ft.		
-98	1355		97C05498	N1					39.5 ft.		
-98	1415		N061F GW003								
-98	1515		97C05499						25.5 ft.		
-98	1540		N062D GW003						32.5 ft.		
-98	1605		97C05500						39.5 ft.		
-98	1705		N062E GW003						25.5 ft.		
-98	1740		97C05501						32.5 ft.		
-98	1805		N062F GW003						25.5 ft.		
-98	1820		97C05502						32.5 ft.		
-98			N063D GW003						25.5 ft.		
-98			97C05503						32.5 ft.		
-98			N063E GW003						25.5 ft.		
-98			97C05504						32.5 ft.		
-98			N064D GW003						25.5 ft.		
-98			97C05505						32.5 ft.		
-98			N064E GW003						25.5 ft.		
-98			97C05506						32.5 ft.		
-98			N065D GW003						25.5 ft.		

Relinquished By: (Signature) <u>Faisal Abedeen</u>	Date/Time 11/28/97	Received By: (Signature)	Date/Time 12-2-97/1000
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time

Send results to: Attn: Nadham Dishi  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Sample Sent To: Scott Savills  
Lab: Data Chem  
Address: 960 West LeVoy Dr  
Salt Lake City  
UT 84123-2547  
(801) 266-7700  
Phone: FEDEx  
Freight Co.: 201225860760  
Air Bill No.: 201225860760

Remarks:

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact Shantha Rajan (print sampler's name) at  
(field phone) (517) 739-4150

## AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

C971639 4°C

182  
2032

Project Name: Samuel's 1012 AF Installation Identification: \_\_\_\_\_  
 Location: \_\_\_\_\_ Contract No.: \_\_\_\_\_  
 Sampler Name/Signature: Leisol Abedeen Delivery Order No.: \_\_\_\_\_

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO.	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
28-Nov-97	1820	SF <sub>6</sub>	97C05507D N065EGW103	FD1	WL	000A	WGr	PP	25.5 ft.	2, 40ml, 6, 1	4°C
28-Nov-97	1900	SF <sub>6</sub>	97C05508 N065EGW003	N1	WL	000A	WGr	PP	32.5 ft.	2, 40ml, 6, 1	4°C
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) Leisol Abedeen Date/Time 11/28/97 Received By: (Signature) \_\_\_\_\_ Date/Time 12-29-97/1000

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Remarks: \_\_\_\_\_

Sample Sent To: \_\_\_\_\_  
 Lab: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Freight Co.: \_\_\_\_\_  
 Air Bill No.: \_\_\_\_\_

For Questions about samples, contact \_\_\_\_\_ (print sampler's name) at \_\_\_\_\_ (field phone)

Send results to: Attn: AmTech Engineering, Inc.  
 4343 Saguardo Trail  
 Indianapolis, IN 46268  
 Phone: (317) 291-7285  
 Fax: (317) 293-1440

Distribution: White: (Original) Accompanies Shipment  
 Yellow: (Copy) Returns With Report  
 Pink: Sampler's Copy

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

97C-0471

Project Name: Pilot Test/Treatability Study AF Installation Identification: WURTS

1163

**AmTech**  
Engineering, Inc.

Location: Wurtsmith AFB, Oscoda, MI

Contract No.: F41624-94-D-8066

SDG  
DECO50

Sampler Name/Signature: A. SHANDARAJAH Delivery Order No.: 0007

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
03- DEC - 98	1155	BTEX	N8B1EGW001	N1	WL	001A	WG	PP	ft.	2.40 ml, G, A	Hc19205542
- 98	1410		N8B2EGW001	N1					ft.		
- 98	1615		N8B4DGW001	N1					ft.		
- 98	1100		N8B4DTB001	TB1	NQ	001A	NQ	NQ	ft.		
- 98	1712		N8B5DGW001	N1	WL		WG	PP	ft.		
- 98	1715		N8B5DGW101	FD1					ft.		
- 98	1915		NH89SGW001	N1					ft.		
- 98	1626		NH90SGW001	N1					ft.		
- 98	2030		NH95SGW001	N1					ft.		
- 98									ft.		
- 98									ft.		
- 98									ft.		
- 98									ft.		

Relinquished By: (Signature) [Signature] Date/Time 12/4/97/1145 Received By: (Signature) [Signature] Date/Time 12/5/97 1120

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received for Laboratory By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Remarks: 7 day T.A.T.

Sample Sent To: Scott Sauls

Lab: Data Chem

Address: 960 West LaVoy Dr.  
Salt Lake City  
UT 84123-2547

Phone: (801) 266-7700

Freight Co.: FEDEX

Air Bill No.: 801225860759

For Questions about samples, contact Skanda Rajah (print sampler's name) at (field phone) (517) 739-4180

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

97C-0478

11000

## AmTech

Engineering, Inc.

Project Name: Pilot Test / Treatability StudyAF Installation Identification: WURTSLocation: Wurtsmith AFB, Oscoda, MIContract No.: F41624-94-D-8066Sampler Name/Signature: [Signature]Delivery Order No.: 0003

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
04-DEC-98	1120	VOCs	NSS8BSU001	N1	SV	101	GS	AV	NAH	SUMMA	NONE
04-DEC-98	1120		NSS8BSU101	FD1	SV	101	GS	AV	H	CANISTER	
04-DEC-98	1120		NSS8BSUAB1	AB1	NQ	100	AA	AC	H		
04-DEC-98	1120		NSS8BSUTB1	TB1	NQ	001	AA	AC	H		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) [Signature] Date/Time 12/14/97 13:00

Relinquished By: (Signature) [Signature] Date/Time 12/15/97 1400

Relinquished By: (Signature) [Signature] Date/Time 12/15/97 1400

Sample Sent To: Scott Samlins

Lab: DATA Chem

Address: 960 West Levey Dr.  
Salt Lake City  
UT 84123-2547  
(801) 266-7700

Phone: FEDEX

Freight Co.: FEDEX

Air Bill No.: 801225860737

Remarks: By TD-14 Method

Send results to: Attn: Nadeem Siddiqui  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact Skayda Rajah (print sampler's name) at  
(field phone) 517 739 4180

## AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Treatability Study

AF Installation Identification: WVRTS

Location: Wurtsmith AFB, Oscoda, MI

Contract No.: F41624-94-D-8066

Sampler Name/Signature: Feisal Abedeen

Delivery Order No.: 0007

01165

1 of 2

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
07-DEC-98	1040	SF <sub>6</sub>	9703599 N8B1CGW001	N1	WL	Q00A	WG	PP	18.5 ft.	2.40 ml, G, A	Cool to 4°C
-98	1105		600 N8B1DGW001	N1					24.5 ft.		
-98	1105		601 N8B1DGW101	FD1					24.5 ft.		
-98	1130		602 N8B1EGW001	N1					31.5 ft.		
-98	1250		603 N8B2CGW001						18.5 ft.		
-98	1345 1320		604 N8B2DGW001						24.5 ft.		
-98	1320		605 N8B2EGW001						31.5 ft.		
-98	1400		606 N8B3CGW001						18.5 ft.		
-98	1420		607 N8B3DGW001						24.5 ft.		
-98	1440		608 N8B4CGW001						18.5 ft.		
-98	1440		609 N8B4CGW101	FD1					18.5 ft.		
-98	1500		610 N8B4DGW001	N1					24.5 ft.		

Relinquished By: (Signature) <u>Feisal Abedeen</u>	Date/Time 12/19/97 1600	Received By: (Signature) <u>Fed X</u>	Date/Time 12/19/97 1200
Relinquished By: (Signature) <u>Fed X</u>	Date/Time	Received By: (Signature)	Date/Time
Relinquished By: (Signature) <u>Fed X</u>	Date/Time	Received By: (Signature) <u>Ala Ph...</u>	Date/Time 12/19/97 1200

Send results to: Attn: Nadzeem Siddiki  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Remarks:

Sample Sent To: Scott Saml's  
Lab: Data Chem  
Address: 960 West LeVoy Dr.  
Salt Lake City  
UT 84123-2547  
Phone: (801) 266-7700  
Freight Co.: FEDEX  
Air Bill No.: 801225840612

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Same as 1 of 2

AF Installation Identification: 1100 1166

Location: 12 of 2

Contract No.: 12 of 2

Sampler Name/Signature: Faisal Abedeen

Delivery Order No.: 12 of 2

**AmTech**  
Engineering, Inc.

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
07-DEC-96	1520	SF <sub>6</sub>	97005611 N8B5CGW001	NI	WL	000A	WG	PP	18.5 ft.	2, 40 ml. G. 1	Cool to 4°C
↓ -96	1540	↓	97005612 N8B5DGW001	NI	WL	000A	WG	PP	24.5 ft.	↓	↓
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) <u>Faisal Abedeen</u>	Date/Time 12/7/97 1600	Received By: (Signature) <u>Fed X</u>	Date/Time 12/4/97 1200
Relinquished By: (Signature) <u>Fed X</u>	Date/Time	Received By: (Signature)	Date/Time
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <u>[Signature]</u>	Date/Time 12/4/97 1200

Remarks:

Send results to: Attn:

AmTech Engineering, Inc.  
4343 Saguardo Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

Sample Sent To:

Lab: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Freight Co.: \_\_\_\_\_

Air Bill No.: \_\_\_\_\_

For Questions about samples, contact \_\_\_\_\_ (print sampler's name) at \_\_\_\_\_  
(field phone)



97C-0489

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Freatability Study AF Installation Identification: WURFS

Location: Wurtsmith AFB, Oscoda, MI

Sampler Name/Signature: Syed Jaffer Siddiki

Contract No.: F41624-94-D-8066

Delivery Order No.: 0007

**AmTech**  
Engineering, Inc.

 0012  
1168

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
11-DEC-98	1415	SF <sub>6</sub>	9705646 N8B5CGW002	N1	WL	000A	WG	PP	18.5 ft.	2,40m) 5A	Cool to 4°C
	1445		9705647 N8B5D GW002						24.5 ft.		
	1505		9705648 N8B4C GW002						18.5 ft.		
	1530		9705649 N8B4D GW002						24.5 ft.		
	1555		9705650 N8B3C GW002						18.5 ft.		
	1625		9705651 N8B3D GW002						24.5 ft.		
	1745		9705652 N8B3E GW002						18.5 ft.		
	1845		9705653 N8B2D GW002						24.5 ft.		
	1845		9705654 N8B2E GW002						31.5 ft.		
	1847		9705655 N8B2E GW102	FD1					31.5 ft.		
	1910		9705656 N8B1C GW002	N1					18.5 ft.		
	1930		9705657 N8B1D GW002						24.5 ft.		
	2000		9705658 N8B1E GW002						31.5 ft.		
Relinquished By: (Signature) <i>Siddiki</i>			Date/Time 12/11/97 2300	Received By: (Signature)	Sample Sent To: Scott Sauls						
Relinquished By: (Signature)			Date/Time	Received By: (Signature)	Lab: Data Chem						
Relinquished By: (Signature)			Date/Time	Received for Laboratory By: (Signature) <i>Siddiki</i>	Address: 960 West LeVoy Dr.						
					Salt Lake City						
					UT 84123-2547						
					(801) 266-7700						
					FEDEX						
					801225860645						

Send results to: Attn: Nadia Siddiki

AmTech Engineering, Inc.

4343 Saguro Trail

Indianapolis, IN 46288

Phone: (317) 291-7285

Fax: (317) 293-1440

 Distribution: White: (Original) Accompanies Shipment  
 Yellow: (Copy) Returns With Report  
 Pink: Sampler's Copy

 For Questions about samples, contact Skanda Rajah (print sampler's name) at  
 (field phone) 517 739 4180

C97-1760  
1°  
1169

Q7C-0508

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test / Feasibility Study AF Installation Identification: WURTS  
Location: Wurtsmith AFB, Oshtemo, MI  
Contract No.: F41624-94-D-8066  
Sampler Name/Signature: [Signature] Delivery Order No.: 0007

**AmTech**  
Engineering, Inc.

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
14-DEC-98	1200	SF <sub>6</sub>	N8B5CGW003	N1	WL	000A	WG	PP	18.5 ft.	2,40ml, 5.1	97005793 Cool to 4°C
-98	1230		N8B5D GW003						24.5 ft.		794
-98	1305		N8B4C GW003						18.5 ft.		796
-98	1350		N8B4D GW003						24.5 ft.		796
-98	1415		N8B3C GW003						18.5 ft.		797
-98	1418		N8B3C GW103	FD1					18.5 ft.		798
-98	1440		N8B3D GW003	N1					24.5 ft.		799
-98	1505		N8B2C GW003						18.5 ft.		800
-98	1525		N8B2D GW003						24.5 ft.		01
-98	1555		N8B2E GW003						31.5 ft.		02
-98	1615		N8B1C GW003						18.5 ft.		03
-98	1640		N8B1D GW003						24.5 ft.		04
-98	1705		N8B1E GW003						31.5 ft.		05

Relinquished By: (Signature) [Signature] Date/Time 12/16/97 1000 Received By: (Signature) [Signature] Date/Time 12/16/97 1000

Relinquished By: (Signature) [Signature] Date/Time [ ] Received By: (Signature) [Signature] Date/Time [ ]

Relinquished By: (Signature) [Signature] Date/Time [ ] Received By: (Signature) [Signature] Date/Time 12/17/97 1515

Remarks: Send results to: Attn: Nadem Siddiqui  
AmTech Engineering, Inc.  
4343 Saguro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Sample Sent To: Brent Siavans  
Lab: Datachem  
Address: 960 West LeVoy Dr.  
Salt Lake City  
UT 84123-2547  
Phone: (801) 266-7700  
Freight Co.: FEDEX  
Air Bill No.: 801225860656

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact Skanda Rajah (print sampler's name) at (field phone) 517 739 4180

**AmTech**  
Engineering, Inc.

Sampler Name/Signature: Blanca

Delivery Order No.: 0007



**AmTech**  
Engineering, Inc.

Sampler Name/Signature: Blanca

Delivery Order No.: 0007



DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO.	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
10-DEC-97	1630	VOCs	NSS8BSU002	N1	SV	000A	GS	AV	N/A ft.	SUMMA CANISTER	HONE 97C65680
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) <i>Ashwin</i>	Date/Time 12/11/97	Received By: (Signature) <i>Jared Ball DEL</i>	Sample Sent To: Scott Saulis Data Chem
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Address: 960 West LeVoy Dr. Salt Lake City UT 84123..2547
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Phone: (801) 266-7700
Remarks:			Freight Co.: FEDEX
			Air Bill No.: 801225860634

By TO-14 Method      Send results to: Attn: Nadene Sidiqi AmTech Engineering, Inc. 4343 Saguro Trail Indianapolis, IN 46268

For Questions about samples, contact Skanda Rajah (print sampler's name) at  
(field phone) 517 739 4180

97C-0507

C97-1760

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING**

Case/SDG  
DEC 17 1170

Project Name: Pilot Test/Treatability Study AF Installation Identification: WURTS

Location: Wurtsmith AFB Oscoda, MI

1 of 2

**AmTech**  
Engineering, Inc.

Sampler Name/Signature: [Signature]

Delivery Order No.: 0007

Contract No.: F41624-94-D-8066

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
15-DEC-97	1100	BTEX &	N0393AB002	AB1	NQ	100A	WQ	NA	NA ft	2, 40 ml	HCL
-97	1100	MTBE	N0393TB002	TB1	NQ	001A	WQ	NA	NA ft	2, 40 ml	HCL
-97	1425	BTEX &	N0393VE009	N1	PH	111A	SO	GB	15.0 ft	2, 40 ml	HCL
-97	1425	MTBE	N0393VE109	FD1					15.0 ft	2, 40 ml	HCL
-97	1427	PAHs	N0393VE009	N1					15.0 ft	2, 40 ml	NONE
-97	1427		N0393VE109	FD1					15.0 ft	2, 40 ml	
-97	1430	Pb	N0393VE009	N1					15.0 ft	1, 40 ml	
-97	1430		N0393VE009	FD1					15.0 ft	1, 40 ml	
-97	1300	BTEX &	N0393GW001	N1			WQ	PP	24.5 ft	2, 40 ml	HCL
-97	1300	MTBE	N0393GW101	FD1			WQ	PP	24.5 ft	2, 40 ml	HCL
-97	1100	PAHs	N0393EB002	EB1	NQ	010A	WQ	NA	NA ft	1, 1 L	NONE
-97	1100	Pb	N0393EB002	EB1	NQ	010A	WQ	NA	NA ft	1, 1 L	NONE

Relinquished By: (Signature) [Signature] Date/Time 12/16/97 1200

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Sample Sent To: Brent Stevens

Lab: Dalac Chem

Address: 960 West LeVoy Dr.  
Salt Lake City

Phone: 801 266 7700

Freight Co.: FED EX

Air Bill No.: \_\_\_\_\_

Send results to: Attn: Nadrem Siddiki  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Remarks: PED of the soil samples  
~1500 ppm

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact Skanda Rajish (print sampler's name) at  
(field phone) 517 734 4190

97C-0507

C97-1760

Project Name: Same as 1 of 2

AF Installation Identification:

Location:

Contract No.: 1171

Delivery Order No.:

Sampler Name/Signature: [Signature]

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
15-DEC-96	1300	PAHs	N03936W01	N1	PH	111A	WG	PP	24.5 ft.	97C05792 1, 1 L	NONE
-96		Pb	N03936W101	FD1						97C05793 1, 1 L	
-96		PAHs	N03936W101	FD1						97C05794 1, 1 L	
-96		Pb	N03936W001	N1						97C05795 1, 1 L	
-96											
-96											
-96											
-96											
-96											
-96											
-96											
-96											
-96											
-96											

Relinquished By: (Signature) [Signature]	Date/Time 12/16/97-1200	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) [Signature]	Date/Time 12/17/97 1515

Sample Sent To:

Lab: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Freight Co.: \_\_\_\_\_

Air Bill No.: \_\_\_\_\_

Remarks:

Send results to: Attn:

AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

For Questions about samples, contact \_\_\_\_\_ (print sampler's name) at \_\_\_\_\_ (field phone)

306: DEC 19

97C-0517

# AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING

Project Name: Pilot Test/Treatability Study AF Installation Identification: WVRSLocation: Wurtsmith AFB, Oscoda, MIContract No.: F41624-94-D-8066Sampler Name/Signature: Tina Peoples/John TaylorDelivery Order No.: 0007

## AmTech

  
Engineering, Inc.

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
17-DEC-97	1745	TCLP VOC	97C05845 NS5065001	N1	SV -000A ASK	000A	SN	CS	NAK	2, 160Z	Coal to 4C
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) <i>John Taylor</i>	Date/Time 12/17/97	Received By: (Signature) <i>Fed Ex</i>	Date/Time 12/19/97
Relinquished By: (Signature) <i>Fed Ex</i>	Date/Time 12/17/97	Received By: (Signature) <i>John Taylor</i>	Date/Time 12/19/97
Relinquished By: (Signature) <i>Fed Ex</i>	Date/Time 12/17/97	Received By: (Signature) <i>John Taylor</i>	Date/Time 12/19/97

Remarks: 1155

Sample Sent To: Brent Stephens  
Lab: Data Chem  
Address: 960 West LeVoy Dr  
Salt Lake City  
UT 84123-2547  
Phone: 801 266-7700  
Freight Co.: FEDEX  
Air Bill No.: 801225860667

Distribution: White: (Original) Accompanies Shipment  
Yellow: (Copy) Returns With Report  
Pink: Sampler's Copy

Send results to: Attn: Skanda Rajah  
Am Tech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268  
Phone: (317) 291-7285  
Fax: (317) 293-1440

For Questions about samples, contact Skanda Rajah (print sampler's name) at  
(field phone) 317 291-7285

1100 1174

97C-0518

Project Name: Pilot Test/Treatability Study AF Installation Identification: WUPTS

Location: Wurtsmith AFB, Oshtemo, MI

Sampler Name/Signature: A. SKANDAPPAJAH / A. Skandappa Delivery Order No.: 0007

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
CHAIN-OF-CUSTODY RECORD FOR ENVIRONMENTAL SAMPLING**

Project Name: Pilot Test/Treatability Study AF Installation Identification: WUPTS

Location: Wurtsmith AFB, Oscoda, MI

Sampler Name/Signature: A. SKANDAPPAJAH / A. Skandappa Delivery Order No.: 0007

DATE	MILITARY TIME	PARAMETER	LOCATION/ SAMPLE ID	SAMPLE TYPE	LOCATION CLASS CODE	FIELD LOT CONTROL NO	SAMPLE MATRIX	SAMPLE METHOD	SAMPLE DEPTH	NO. & SIZE OF CONTAINERS	PRESERVATIVE
19-DEC-98	1125	VOC <del>7705846</del>	N5092TB001	TB1	NQ	001 A	NQ	NQ	NA ft.	2, 40ml G	HCl
-98	1125	VOC <del>7705846</del>	N5092FI001	N1		001 A	WG	G	NA ft.	2, 40ml G	HCl
-98	1125	RCPH METALS <del>7705846</del>	N5092FT001	N1		001 A	WG	G	NA ft.	2, 500ml P	HNO <sub>3</sub>
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		
-96									ft.		

Relinquished By: (Signature) *[Signature]* Date/Time 1220 12/19/97 Received By: (Signature) FedEx

Relinquished By: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_

Relinquished By: (Signature) *Fed Ex* Date/Time \_\_\_\_\_ Received By: (Signature) *[Signature]* Date/Time 12/20/97 1140

Sample Sent To: Brent Stephens

Lab: Data Chem

Address: 960 West LeVoy Dr  
Salt Lake City  
UT 84123

Phone: 801 266 7700

Freight Co.: FEDEX

Air Bill No.: 801225860715

Remarks:

14 day T.A.T.

Send results to: Attn: Skanda Rajah  
AmTech Engineering, Inc.  
4343 Saguaro Trail  
Indianapolis, IN 46268

**Distribution:**  
 White: (Original) Accompanies Shipment  
 Yellow: (Copy) Returns With Report  
 Pink: Sampler's Copy

For Questions about samples, contact Shandya Rajan (print sampler's name) at  
(field phone) 317 291 7285

## **DATA VERIFICATION AND VALIDATION**



Sample Set

97C-0457-01 VOA  
 97I-2648-01 VOA  
 97C-0464-01 SF6  
 97C-0465-01 SF6  
 97C-0466-01 SF6  
 97C-0471-01 VOA  
 97C-0478-01 VOA  
 97C-0481-01 SF6  
 97C-0489-01 SF6  
 97C-0508-01 SF6  
 97C-0494-01 VOA  
 97C-0507-01 VOA  
 97C-0507-02 PPH  
 97C-0507-03 Pb  
 97C-0507-04 VOA  
 97C-0507-05 PPH  
 97C-0507-06 Pb  
 97C-0517-02 TCEP VOA  
 97C-0518-01 VOA  
 97C-0518-02 MeTab  
 97C-0518-03 Hg  
 97C-0507-07 SF6/d6

AmTech Engineering  
 Wurtsmith AFB, D.O. 0007  
 CHECKLIST FOR DATA PACKAGE VERIFICATION: Package ID: see list

item in package	metals (MCRA)	VOA: 8240, (8250)	VOA- TO-14	PAHs	lead	NTBF	SP.	BTEX
number of samples	1	5	7	5	5	6	81	15
case narrative	x	x	x	n/a	x	x	x	x
example calculations	n/a	x	x	n/a	n/a	x	x	x
result forms	x	x	x	n/a	x	x	x	x
instrument data (metals)	x				x			x
GFAA raw data (metals)	x				x			n/a
sample preparation log (metals)	x				x			x
std. solution prep log (metals)	x				x			x
8 solids calc. sheet (metals)	n/a				n/a			n/a
Text. Ident. Cmpds. list (TICs)		x	x	n/a	n/a	n/a	n/a	n/a
data table- results & QC	x	x	x	n/a	x	x	n/a	x
Surrogate Forms (II)		x	x	n/a		x	n/a	n/a
Matrix Spike/Dup (MS/MSD-III)	x	x	x	n/a	x	x	n/a	x
Method Blank Summary (IV)	x	x	x	n/a	x	x	x	x
Tuning/Run log (V)	x	x	x	n/a	x	n/a	x	n/a
Internal Std. Areas (IS-VIII)		x	x	n/a		n/a	n/a	n/a
Raw data- by sample: (Organic)								
* result form		x	x	n/a		x	x	x
* Chromatogram		x	x	n/a		n/a	x	n/a
* Quantitation report		x	x	n/a		n/a	x	n/a
* target Mass Spectra (VOA)		x	x	n/a		n/a	r/a	n/a
* TIC Mass Spectra (VOA)		N/a	x	n/a		n/a	n/a	n/a
Calibration data:								
* initial calibration data	x	x	x	n/a	x	x	x	x
* continuing calibration data	x	x	x	n/a	x	x	x	x
Analysis log, organics		x	x	n/a		x	x	n/a
Surrogate/spike prep. log (organic)		x	x	n/a		n/a	n/a	n/a
LCS recoveries and limits	x	x	x	n/a	x	x	x	x

Verified By: Roy Cohen date 2/2/98  
 Roy Cohen, AmTech Engineering

## DATA RESULT FORMS COVER SHEET

Project: Wurtsmith AFB Batch see attached list

As the result of data validation, the following AFCEE qualifiers may be assigned to the data (under column labelled "VQ"):

- U The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
- J The analyte was positively identified; the quantitation is an estimation.
- F The analyte was positively identified but the associated numerical value is below the reporting limit (RL), but above the method detection limit (MDL).
- R The data are unusable due to deficiencies in the ability to analyze the sample and/or meet QC criteria.
- B The analyte was found in the associated blanks, as well as the sample.
- M A matrix effect was present; M+ indicates a result is biased high; an M- indicates a result is biased low.
- S This code applies to all screening data.
- T Tentatively identified compounds identified by GC/MS.

In addition to these codes, the validator may apply the following codes to further indicate data quality or usability.

- (dash) No qualification of a positive result.
- UJ The analyte was analyzed for, but was not detected. The associated numerical value is at or below the MDL, and is considered estimated due to non-compliant quality control data.
- Z This result, or detection limit in this analysis is not the best one to use; another analysis (e.g., the dilution or re-analysis) contains a more confident and usable result; refer to the report for more details.

Date sent out: Feb 6, 1998

Reviewer(s): Roy J. Cohen

*Roy J. Cohen*

print name

signature

Received by: A. SKANDARAJAN

print name

signature

date

(AmTech Engineering)

*A. Skandarajan* 2/16/98

## SAMPLE SETS

97C-0457-01	VOA
97C-2648-01	VOA
97C-0464-01	SF <sub>6</sub>
97C-0465-01	SF <sub>6</sub>
97C-0466-01	SF <sub>6</sub>
97C-0471-01	VOA
97C-0478-01	VOA
97C-0481-01	SF <sub>6</sub>
97C-0489-01	SF <sub>6</sub>
97C-0508-01	SF <sub>6</sub>
97C-0494-01	VOA
97C-0507-01	VOA
97C-0507-02	PAH
97C-0507-03	Pb
97C-0507-04	VOA
97C-0507-05	PAH
97C-0507-06	Pb
97C-0517-02	TCLP VOA
97C-0518-01	VOA
97C-0518-02	Metals
97C-0518-03	Hg
97C-0507-07	% Solids

DATA VALIDATION REPORT  
WURTSMITH AFB; D.O. 0007  
LABORATORY: DATA CHEM, SALT LAKE CITY

This report covers the validation of 22 sample batches that were received at DCL from Nov. 21, 1997 through Dec. 20, 1997. The laboratory submitted all 22 batches in one large data package. The validator reviewed each sample batch individually. This report discusses each batch in that manner.

1. Batch 97C-0457-01, T0-14 Volatiles (4 air samples)

Based on the data submitted, there were no quality control issues identified. Therefore, no data were qualified.

2. Batch 97C-2648-01, T0-14 Volatiles (1 air sample)

Based on the data submitted, there were no quality control issues identified. Therefore, no data were qualified.

3. Batch 97C-0464-01, 13 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data, several problems were noted:

- 1) First, the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated.
- 2) During the analysis, the lab analyst was unable to fill the analysis vials full enough to prevent headspace from occurring, causing loss of analyte. Upon repeated analysis, the samples yielded lower and lower results for SF<sub>6</sub>, suggesting that the analyte loss from the sampling container continued rather rapidly. Again, a low bias is indicated by this observation.
- 3) A few samples required dilution because the value of SF<sub>6</sub> exceeded the calibration range of the instrument. Upon dilution, however, the results were only a small fraction of the initial results, again suggesting considerable loss of analyte from the sample container.
- 4) Another factor involves inconsistent recoveries of the continuing calibration verification (CCV) standard. One recovery was quite high, another was low.

Based on these issues, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased considerably low (i.e., the actual sample concentrations are most likely much higher than reported).

4. Batch 97C-0465-01, 14 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data, several problems were noted:

- 1) First, the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated.
- 2) During the analysis, the lab analyst was unable to fill the analysis vials full enough to prevent headspace from occurring, causing loss of analyte. Upon repeated analysis, the

samples yielded lower and lower results for SF<sub>6</sub>, suggesting that the analyte loss from the sampling container continued rather rapidly. Again, a low bias is indicated by this observation.

3) A few samples required dilution because the value of SF<sub>6</sub> exceeded the calibration range of the instrument. Upon dilution, however, the results were only a small fraction of the initial results, again suggesting considerable loss of analyte from the sample container.

4) Another factor involves inconsistent recoveries of the continuing calibration verification (CCV) standard. One recovery was quite high, another was low.

Based on these issues, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased considerably low (i.e., the actual sample concentrations are most likely much higher than reported).

#### 5. Batch 97C-0466-01, 14 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data, several problems were noted:

1) First, the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated.

2) During the analysis, the lab analyst was unable to fill the analysis vials full enough to prevent headspace from occurring, causing loss of analyte. Upon repeated analysis, the samples yielded lower and lower results for SF<sub>6</sub>, suggesting that the analyte loss from the sampling container continued rather rapidly. Again, a low bias is indicated by this observation.

3) A few samples required dilution because the value of SF<sub>6</sub> exceeded the calibration range of the instrument. Upon dilution, however, the results were only a small fraction of the initial results, again suggesting considerable loss of analyte from the sample container.

4) Another factor involves inconsistent recoveries of the continuing calibration verification (CCV) standard. One recovery was quite high, another was low.

Based on these issues, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased considerably low (i.e., the actual sample concentrations are most likely much higher than reported).

#### 6. Volatiles (BTEXs)- batch 97C-047-01; 11 samples

1. The results for toluene in samples N8B1EGW001 and N8B5DGW001 were qualified (B) due to trip blank contamination.

2. All analytes have been qualified as estimated (J) in sample NH89SGW001 because the surrogate recovery was low for bromofluorobenzene (BFB). Results may be biased slightly low.

3. The BFB surrogate recovery was low in sample NH90SGW001. The positive results for benzene, ethylbenzene, and m/p xylenes have been qualified as estimated (J); the non-detected result for toluene has been qualified as unusable (R). The result for o-xylenes, already qualified (F), may also be considered estimated because of the low BFB surrogate.

7. TO-14 Volatiles- batch 97C-0478-01 (4 air samples)

There were no quality control findings, and no data were qualified on that basis.

8. Batch 97C-0481-01, 14 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data, the following problems were noted:

- 1) First, the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated.
- 2) Another factor involves inconsistent recoveries of the continuing calibration verification (CCV) standard. One recovery was slightly high, and another was slightly low, suggesting an estimated quantitation for all associated samples.

Based on these issues, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased low - the actual sample concentrations (and the reporting limit) may be approximately 20 % higher than reported. Non-detected results have been qualified as UJ, estimated.

9. Batch 97C-0489-01, 13 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data, the following problems were noted:

- 1) First, the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated.
- 2) Another factor involves inconsistent recoveries of the continuing calibration verification (CCV) standard. One recovery was slightly high, and another was low, suggesting an estimated result for all samples.

Based on these issues, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased low - the actual sample concentrations (as well as the reporting limit) may be approximately 20 % higher than reported.

10. Batch 97C-0508-01, 13 water samples for Sulfur Hexafluoride ( SF<sub>6</sub> )

Upon analysis of the data it was noted that the laboratory miscalculated the concentration of the SF<sub>6</sub> standard used to calibrate the gas chromatograph. The actual calculated concentration of the standard should be about 20% higher. A low bias is indicated for all results and reporting limits. Therefore, all positive results for sulfur hexafluoride have been qualified as estimated (J), and should be considered biased low - the actual sample concentrations (as well as the reporting limit) may be approximately 20 % higher than reported.

11. Batch 97C-0494-01, 1 air samples for TO-14 VOAs

There were no quality control findings, and no data were qualified.

12. Batch 97C-0507-01; 4 aqueous samples for BTEX and MTBE

There were no quality control findings, and no data were qualified.

13. Batch 97C-0507-02; 3 aqueous samples for PAHs:

There were no quality control findings, and no data were qualified.

14. Batch 97C-0507-03; 3 aqueous samples for lead:

There were no quality control findings, and no data were qualified.

15. Batch 97C-0507-04; 2 solid samples for BTEX and MTBE:

1) The results for total xylenes have been qualified as estimated, biased high (M+) due to high MS/MSD recoveries for total xylenes in sample N0393VE109. The actual results may be lower than reported by as much as 50%.

2) The results for ethylbenzene and toluene in both samples (-109 and -009) have been qualified as estimated (J) due to field duplicate imprecision.

16. Batch 97C-0507-05; 2 solid samples for PAHs:

All positive results are considered estimated in both samples, and have been qualified (J) due to field duplicate imprecision (except for fluoranthene, and results already qualified "F" that are below the reporting limit but above the MDL). Non-detected results in sample N0393VE009 have been qualified as estimated, UJ, because these compounds (benzo(g,h,i)perylene and benzo(k)fluoranthene) were detected above the reporting limit in sample -109.

17. Batch 97C-0507-06; 2 solid samples for lead:

There were no quality control findings, and no data were qualified.

18. Batch 97C-0517-02; 1 sample for TCLP VOA:

There were no quality control findings, and no data were qualified.

19. Batch 97C-0518-01; 2 aqueous samples for VOA:

There were no quality control findings, and no data were qualified.

20. Batch 97C-0518-02; 1 aqueous sample for RCRA Metals (except Hg):

There were no quality control findings, and no data were qualified.

21. Batch 97C-0518-03; 1 aqueous sample for mercury (Hg):

There were no quality control findings, and no data were qualified.

22. Batch 97C-0507-07; 3 solid samples for percent solids:

There were no quality control findings, and no data were qualified.

Date Validation completed: February 6, 1998

Validator signature: \_\_\_\_\_

Roy J. Cohen, AmTech Engineering

**APPENDIX F**  
**FIELD DATA COLLECTION SHEETS**



# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well \_\_\_\_\_

Test Location \_\_\_\_\_

Date	Time	TDS/3M Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/12/97	MP	<del>4-E</del>	<del>7-D</del>					FA
	①	3:32 0.571/0.43	6.69	7.03	0.42	-116.3	0.887	} 1-E
	②	3:37 0.546/0.44	5.79	7.03	0.42	-95.5	0.587	
	③	3:45 0.738/0.57	6.61	6.75	1.08	-49.2	1.150	
	④	3:53 0.805/0.62	5.39	6.74	1.06	-47.6	1.242	
		<del>MP 4-E</del>		4-E				
	①	4:46 0.939/0.77	9.06	6.80	0.66	-85.3	1.530	
	②	4:52 1.011/0.79	9.01	6.82	0.59	-95.2	1.554	
		MP <del>4-E</del>	4-D					
	①	5:10 1.624/1.29	9.30	6.57	0.65	-73.4	2.492	
	②	5:15 1.577/1.25	9.48	6.55	0.65	-76.3	2.428	
		MP 5-D						
	①	5:36 1.178/0.92	8.71	6.63	0.86	-63.7	1.807	
	②	5:40 1.151/0.90	8.63	6.63	0.78	-66.4	1.776	
		MP 5-E						
	①	5:50 0.844/0.65	8.68	6.81	0.67	-99.5	1.286	
	②	5:55 0.818/0.63	8.75	6.82	0.58	-104.6	1.256	

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well \_\_\_\_\_

Test Location \_\_\_\_\_

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	SpC MS Purge Rate (gpm)	Operator
11/14/97		MP3-E						
(1)	12:45 PM	--	9.85	6.74	0.49	-53.1	1.226	FA
(2)	12:48	-	9.85	6.84	0.37	-68.6	1.234	
		MP3-D						
(1)	12:56	10/0.81	10.85	6.49	0.55	-49.0	1.598	
(2)	1:00 PM	10/0.82	10.82	6.48	0.54	-56.8	1.612	
(3)	1:10	107/0.84	10.83	6.46	0.58	-79.8	1.645	
		MP2-DE						
(1)	1:50 PM	0.735/0.56	8.12	6.95	0.45	-129.7	1.130	
(2)	1:53	0.73/0.56	8.21	6.95	0.56	-132.5	1.120	
(3)	1:55	0.725/0.56	8.21	6.95	0.45	-134.8	1.116	
		MP2-F						
(1)	2:15	0.692/0.53	6.64	7.06	0.47	-125.6	1.063	
(2)	2:22	0.691/0.53	6.28	7.08	0.46	-125.8	1.066	
(3)	2:35	0.687/0.53	6.49	7.10	0.42	-125.5	1.057	
		MP3-IF						
(1)	3:03	0.583/0.44	7.07	7.17	0.31	-110.3	0.597	
(2)	3:05	0.590/0.45	7.08	7.19	0.30	-115.9	0.905	
		MP1-E						
(1)	3:15	0.596/0.45	6.79	7.18	0.45	-119.2	0.918	
(2)	3:20	0.598/0.45	6.43	7.14	0.44	-120.4	0.919	
		<del>MP3-E 1-E (D)</del>						
(1)	3:23	<del>0.565/0.43</del>	<del>6.42</del>	<del>7.05</del>	<del>0.86</del>	<del>-111.3</del>	<del>0.870</del>	
(2)	3:27	<del>0.565/0.43</del>	<del>6.90</del>	<del>7.03</del>	<del>0.45</del>	<del>-115.5</del>	<del>0.871</del>	

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-2

Vapor Monitoring Well SS06-MP1

Test Location SS06-MP1A

Date	Time	Vacuum (Inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97				20.3	0.0	0.3	0.0	141	
	1818			20.3		0	0.0	178	
	1819			13.0	5.4	0.3	0.0	170	
	1820			13.0	5.4	0.3	0.0	164	
	1821			13.0	5.3	0.2	0.0	160	
	1822			13.0	5.3	0.2	0.0	161	
	1823								
	1824								
<hr/>									
11/12/97	1914								
	<del>1915</del>								
	<del>1916</del>								
	<del>1917</del>			20.3	0.0	0.2	0.0		
	1918			20.3	0.0	0.2	0.0		
	1949			20.3	0.0	0.2	0.0		
	1950			20.3	0.0	0.2	0.0		
	1951			20.3	0.0	0.2	0.0	2.45	
	1952								
<hr/>									
11/13/97	9:26	29.1" HG	PURGING						
	9:32			20.0	0.4	0.0	—	240	FA
REPEAT	9:42		PURGING						
	9:47			20.2	0.4	0.0		37.4	JP
<hr/>									
11/13/97	16:15	2.57							
	4:37	4:35	2.55						
		5:04	2.55						
		<del>5:00</del>	<del>1.13</del>						
		5:52	2.53						
<hr/>									
	9:55	2.54							
<hr/>									
11/14/97	10:00	2.48							

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS-06

Test Location NP1-B A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/15/97	255 PM	1.59							
	300			0.0	0.0	0.05		40-30	
11/17/97	1122 AM	1.50		19.0	0.0	0.1		53	
11/18/97	1117			20.1	0.00	0.00		24.3	
	1120			20.1	0.00	0.00		20.2	
	1123	1.21		20.1	0.00	0.00		19.2	
11/19/97	1424			20.2	0.00	0.00		7.7	
	1427	1.52		20.2	0.00	0.00		7.7	
11/20/97	1342	1.40							
	1353			19.9	0.0	0.1	0.0	39.2	SJ
	1359			20.0	0.0	0.1	0.0	33.5	
	1402			20.0	0.0	0.1	0.0	37.3	
11/21/97	1059			20.4	0	0	0	5.5	SJ
	1103			20.3	0	0	0	5.4	
	1107			20.2	0	0	0	3.8	
	1110			20.3	0	0	0	3.9	
	1112	1.80							
	1216			19.9	0	0	0	45.1	
	1220			19.8	0	0	0	37.7	
11/22/97	1222	1.62							SJ
	1224			20.9	0.2	0	0	24.7	
	1227			20.8	0.2	0	0	23.2	
	1230			20.6	0.2	0	0	21.7	
11/23/97	1528	1.67							
	1531			20.5	0.2	0	0	434	SJ
	1537			20.6	0.2	0	0	439	
	1540			20.6	0.2	0	0	434	
11/24/97	1124	0.40							
	1133			19.5	0.2	27.1	1.8	410	SJ
	1137			19.3	0.1	25.3	1.8	418	

**M&E**

11:42  
11:45  
11:48  
11:51

20.5% 0.1  
19.4% 0.1  
19.4% 0.1  
19.4 0.1

20.5% 1.8  
36.6% 1.9  
36.9 1.8  
38.2 1.8

432  
435  
435  
435

J.P. (pump)

FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well MP1 - A

Test Location 5506

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/24/97	1554	-0.16		19.7	0.0	45.3	2.0	397	JP
	1552			19.6	0.0	51.0	2.0	401	
	1601			19.6	0.0	53.9	2.0	406	
	1604			19.5	0.0	55.3	2.0	407	
Sparging stopped at 2130 on 11/24/97									
11/24	2136			19.6 <del>35.6</del>	0.00	35.6	2.0	436	ASR
	2139			19.6	0.00	42.6	2.0	425	
	2142			19.6	0.00	43.6	2.0	418	
	2145			19.6	0.00	45.0	2.0	418	
11/25/97	1619			20.6	0	0	1.1	683	SJ
	1622			20.7	0	0	1.1	681	
	1625			20.7	0	0	1.2	669	
11/26/97	1055			19.1	0.10	36.5	0.91	630	FA
	1100			19.6	0.1	37.5	0.90	623	
11/28/97	1240	—	—	18.4	0.3	12.7	0.55	2164	FA
	1250			18.4	0.3	12.7	0.52	2308	
11/30/97	1625			18.3	0.4	1.2	0.27	228.6	
	1630			18.3	0.4	1.8	0.28	272.0	
12/2/97	1049			18.3	0.5	0.6	0.18	171.9	SJ
	1056			18.2	0.5	0.7	0.20	201.8	
	1103			18.2	0.5	0.7	0.20	217.6	
12/4/97	1022			18.0	0.7	0.1	0.17	93.6	SJ
	1025			17.9	0.7	0.1	0.15	98.0	
	1029			17.7	0.7	0.2	0.15	112.2	
	1032			17.7	0.7	0.1	0.15	114.5	
12/9/97	1610			17.5	0.7	0.0	0.00	31.1	ASR
	1615			17.5	0.7	0.0	0.00	33.3	
	1620			17.6	0.7	0.0	0.00	34.7	
	1625			17.6	0.7	0.0	0.00	35.0	



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-3

Vapor Monitoring Well SS06-MP1

Test Location MP1 B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1804	0		20.6	0.0	0.0	0.0	0.0	
	1806			0.2	15.1	45.7	0.0	148	
	1807			0.2	15.1	49.2	0.0	144	
	1808			0.1	15.1	51.4	0.0	139	
	1809			0.1	15.0	53.0	0.0	142	
	1810			0.1	15.0	51.3	0.0	142	
	1811			0.2	14.9	55.0	0.0	143	
	1812								
<hr/>									
11/12/97	1933			19.6	0.8	3.3	0.0		
	1934			19.7	0.8	1.0	0.0		
	1935			19.8	0.7	0.9	0.0		
	1936			19.8	0.7	0.8	0.0		
		6.2		19.8	0.7	0.7	0.0	454	
11/12/97	9:58			15.1	3.9	0.7		270	
11/13/97	16:16	5.8							
	16:37	5.75							
	5:02	5.72							
	<del>5:00</del>	<del>1.42</del>							
	5:52	5.65							
	9:56	5.09							
11/14/97	1000 AM	5.56							
11/15/97	1:55 PM	3.45		START PURGING					
	3:05 PM			20.0	0.0	2.0		40.3	
		3.4							
11/17/97	11:48 AM			17.9	0.0	0.0		40.8	
11/18/97	11:31			20.1	0.0	0.0		17.2	
	11:34			20.1	0.00	0.00		16.2	
	11:37	2.71		20.0	0.00	0.00		15.1	

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS-00 Test Location MPI - B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1433			20.1	0.00	0.00		7.7	SJ
	1441	3.0		20.1	0.00	0.00	0.0	6.4	
11/20/97	1549	2.93							
	1553			20.3	0	0	0	12.6	SJ
	1556			20.4	0	0	0	13.4	
	1559			20.4	0	0	0	13.4	
11/21/97	1315	3.12							SJ
	1316			19.9	0	0	0	15.6	
	1321			20.1	0	0	0	24.8	
	1324			20.1	0	0	0	28.5	
	1330			20.3	0	0	0	35.0	
11/22/97	1333	3.25							
	1334			20.1	0.2	0	0	9.7	SJ
	1337			20.1	0.2	0	0	14.2	
	1340			20.0	0.2	0	0	12.7	
11/23/97	1737	3.23							
	1752			19.9	0.3	0	0	185.6	SJ
	1755			19.9	0.3	0	0	197.8	
	1758			19.9	0.2	0	0	204.8	
11/24/97	1153	-0.38		19.5	0.1	34.2	2.0	449	JP
	1158			19.6	0	32.6	2.0	463	
	1202			19.6	0.0	33.8	1.9	465	
11/24/97	1607	-0.38		19.6	0.0	47.2	2.1	436	JP
	1613			19.6	0.0	46.1	—	439	
	1621			19.7	0.0	45.1	2.0	444	
Sparging stopped at 2130									
11/24/97	2147			19.7	0.00	40.9	2.0	425	ABR
	2152			19.7	0.00	32.4	2.0	460	
	2155			19.6	0.0	37.3	2.0	433	
	2158			19.6	0.00	39.5	2.0	425	
11/25/97	1648			18.7	0.6	27.8	1.5	664	SJ

1657

1651

1656

**M&E**

18.7 0.6 29.0

18.7 0.5 29.7

1.5 650

1.4 627



# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

### Vapor Monitoring Well

SS-06

### Test Location

MP 1-B

[illegible]

M&amp;E

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06-MP1Test Location SS06-MP1C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	ORM PID (ppm)	Operator
11/11/97				20.1	0.0	0.1	0.0	46.1	
	1829			0.6	15.8	115.5	0.0	69.7	
	1830			0.1	15.8	138.8	0.0	71.7	
	1831			0.0	15.7	145.4	0.0	74.4	
	1832			0.0	15.8	149.5	0.0	75.1	
	1833			0.0	15.4	277	0.0	79.4	
	1834								
<hr/>									
11/12/97	1921			4.1	13.8	32.5	0.110		
	1922			4.2	13.7	31.5	0.130		
	1923			4.2	13.7	31.8	0.280		
	1924			3.7	14.0	33.7	0.300		
	1925			4.2	13.6	31.8	0.0		
	1926			4.3	13.6	30.5	0.0		
	1927			4.4	13.4	30.3	0.0		
	1928	7.3		4.7	13.4	27.8	0.0	1000	
11/13/97	10:05		PURGING						
10:09	10:09			4.5	12.3	71.7		142	FA
11/13/97	16:17	6.78							
	4:38	6.75							
	5:02	6.70							
	5:00	2.58							
	5:52	6.63							
		6.76							
	9:52	6.74							
<hr/>									
11/14/97	8:00	6.61							
11/15/97	3:05 PM	4.11							
	3:10 PM			20.0	0.0	0.0		42.2	
11/19/97	11:55 AM	4.05		17.9	0.2	0.5		357	
11/18/97	11:41	3.30		19.8	0.2	0.3		283	
11/18/97	11:44			19.8	0.2	0.3		324	
	11:47			19.8	0.2	0.3		357	

1157

20.2 0.1

0.3

391

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS 06-MP1

Test Location SS06-MP1C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1719			14.4	7.2	>150	2.4	85.5	SJ
	1730			14.1	7.4	>150		85.5	
	1735			14.1	7.2	>150		85.5	
11/20/97	1745	3.47							
	1806			20.2	0	0	0	9.7	SJ
	1812			20.2	0	0	0	8.9	
	1824			20.2	0	0	0.0	5.9	JP
11/20/97	1907	3.54							
	1913			16.0	3.6	46.5	0.22	201	SJ
	1917			16.0	3.6	46.8	0.27	194	
	1920			16.0	3.7	47.8	0.27	193	
	1923			16.0	3.7	48.3	0.27	194	
11/21/97	1540	3.59							
	1548			20.8	0	0.1	0	12.9	SJ
	1553			20.8	0	0	0	13.8	
	1614			21.2	0	0	0	11.9	
	1618			21.2	0	0	0	11.9	
11/22/97	1550	3.51							
	1552			20.0	1.9	2.4	.02	271	SJ
	1556			19.2	1.8	3.7	0	401	
	1559			19.2	1.7	5.4	0	467	
	1616			18.9	1.8	7.6		602	
11/23/97	13.58	3.75							
	13.59			13.9	7.6	68.6	0.21	150.5	SJ
	14.06			13.9	7.6	68.8	0.23	163	
	1409			13.9	7.6	72.7	0.21	164	
11/24/97	x								
↓	1204	-0.47		19.8	0.0	26.3	2.0	565	JP
	1213			19.7	0	10.6	2.0	539	SJ
	1220			19.6	0.0	10.1	2.0	546	JP
	1224			19.4	0.0	11.4	1.9	552	

**M&E**

FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well MP1C

Test Location 5506

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/24/97	1625	-0.54		19.2	0.0	17.6	2.0	522	JR
	1632			19.2	0.0	12.7	2.0	524	
	1637			19.9	0.0	12.3	2.0	526	
	Air Sparging was stopped at 2130.								
11/24/97	2200			19.6	0.00	31.2	1.9	475	FA
	2203			19.6	0.00	25.0	1.9	471	
	2206			19.6	0.00	26.7	1.9	455	
	2210			19.5	0.00	29.7	1.9	439	
11/25/97	1702			19.0	0.5	55.0	1.6	506	SJ
	1706			19.0	0.5	57.1	1.6	486	
	1712			19.1	0.5	55.6	1.5	477	
11/26/97	1115	—		17.6	0.6	65.7	1.6	451	
	1120			17.6	0.5	66.5	1.6	445	
11/28/97	1350	—		15.0	1.5	61.1	1.0	1562	FA
	1400			15.0	1.4	59.8	1.1	1673	
11/30/97	1700			12.8	2.5	47.8	0.57	401	
	1705			12.8	2.4	46.5	0.52	411	
12/2/97	1140			10.7	3.7	56.0	0.21	367	SJ
	1146			10.8	3.6	56.6	0.20	384	
	1150			10.9	3.6	53.4	0.17	392	
	1153			11.0	3.6	51.8	0.17	399	
12/4/97	1101			6.8	4.8	66.6	0.07	404	SJ
	1104			6.8	4.8	64.5	0.06	401	
	1107			6.8	4.7	64.1	0.06	416	
	1111			6.9	4.7	63.3	0.06	427	
12/9/97	1950			3.3	7.3	62.2	0.0	389	FA
	1955			3.4	7.3	59.7	0.0	392	
	2000			3.4	7.2	57.4	0.0	403	
12/13/97	1410			1.6	9.8	39.7	0	766	SJ
	1413			1.6	9.7	47.0	0	813	
	1416			1.6	9.7	49.2	0	833	
	1420			1.7	9.6	49.4	0	853	

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-5

Vapor Monitoring Well SS06-MP2

Test Location SS06-MP2A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1838			11.2	6.8	2.8	0.0	745.	
	1839			11.6	6.1	2.7	0.0	730	
	1840								
	1841			12.8	6.0	2.0	0.0	713	
	1842			11.6	6.1	2.3	0.0	707	
	1843			11.5	6.1	2.4	0.0	720	
	1844			11.5	6.1	2.5	0.0	725	
	1845								
11/12/97									
	2015			20.1	0.3	2.6	0.0		
	2016			20.1	0.3	2.6	0.0		
	2017			20.1	0.3	2.7	0.0		
	2018			20.1	0.3	2.7	0.0	2449	
	2019								
11/13/97									
	10:15		PURGING						
	10:20			17.9	2.1	2.8		896	
11/13/97	1618	1.12							
	438	1.13							
	500	1.13							
	554	1.07							
	1000PM	1.09							
11/14/97									
	920 AM	1.11							
11/15/97									
	312 PM	0.69		START	PURGING				
	317 PM			20.0	0.0	0.0		57.1	
11/17/97	1240	0.69		18.4	0.0	0.0		83.0	
11/18/97	1253			20.7	0.00	0.00		120.0	* Previous Test was made 8/20.
	1207			21.0	0.00	0.00		93.1	
	1211			21.0	0.00	0.00		81.0/62.0	12-18
	1220	0.63		21.0	0.00	0.00		55.6	

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS 06-MP2

Test Location SS 06-MP2.H

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1451			20.1	0.0	0.0	0.01	10.2	SJ
	1455	0.68		20.1	0.0	0.0		10.2	
11/20/97	1414	0.66							
	1427			20.4	0.0	0.0		25.3	
	1432			20.4	0.0	0.0	0.0	24.6	
	1436			20.4	0.0	0.0	0.0	24.6	
11/21/97	1116	0.83		20.2					SJ
	1117			20.2	0	0	0	0.7	
	1120			20.2	0	0	0	0	
	1135			20.2	0	0	0	0	
11/22	1138			19.9	0	0	0		
	1207			19.7	0	0	0	202.7	
	1210			19.7	0	0	0	202.7	
11/22/97	1232	0.91							SJ
	1233			20.3	0.2	0	0	24.7	
	1245			20.0	0.2	0	0	18.6	
	1248			20.1	0.2	0	0	18.7	
11/23/97	1545	0.72							SJ
	1554			20.6	0.2	0	0	323	
	1615			20.5	0.2	0	0	164	
	1651			20.2	0.3	0	0	159.9	
11/24/97	1226	-0.08							
	1229			19.3	0	10.8	0	404	SJ
	1233			18.2	0.3	5.1	0	331	
	1236			18.1	0.3	5.0	0	318	
11/24/97	1640	-0.07		17.2	1.8	23.6	0.08	418	JP
	1643			17.2	1.9	22.5	0.09	401	
	1646			17.2	1.9	21.4	0.08	391	
		Air Sparging was stopped at 2130.							
11/24/97	2214			18.0	1.9	31.0	0.55	410	ASR
	2217			18.0	1.9	25.3	0.53	418	
	2220			18.0	1.8	21.4	0.52	418	

## M&E

11/25/97 1715  
1720  
1725

19.7 1.0  
19.8 1.1  
19.9 1.1

5.6 0.32 737 SJ  
0.6 0.43 428  
0.5 0.44 377

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS-06 Test Location MP2A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/26/97	1425								
	1125	—		18.0	0.7	2.1	0.36	412	FA
	1130			18.9	0.7	0.8	0.38	305	
	1135			18.9	0.7	0.7	0.42	275	
11/28/97	1420	—	—	18.9	0.5	0.9	0.36		
	1520			18.8	0.5	0.1	0.35	227	FA
		—	—	18.8	0.5	0.1	0.38	215	
11/30/97	1720	—	—	18.8	0.4	0.7	0.28	230	
	1725			18.8	0.4	0.4	0.28	200	
12/2/97	1158			18.0	0.7	1.9	0.24	335	SJ
	1202			18.0	0.7	0.8	0.24	236	
	1206			18.0	0.7	0.5	0.17	184	
	1209			18.0	0.7	0.3	0.17	152	
	1211			18.0	0.7	0.3	0.17	146	
12/4/97	1118			17.0	1.0	0.7	0.14	298	SJ
	1123			17.0	1.0	0.3	0.13	194	
	1126			17.0	1.0	0.2	0.10	173	
	1129			17.0	1.0	0.2	0.10	152	
12/9/97	1645			16.8	1.2	0.0	0.01	40.0	ASK
	1650			16.7	1.2	0.0	0.00	27.9	
	1655			16.7	1.2	0.0	0.0	23.9	
	1700			16.6	1.2	0.0	0.0	20.0	
12/13/97	1105			16.0	1.5	0	0	8.6	SJ
	1110			16.0	1.7	0	0	7.7	
	1113			16.0	1.8	0	0	7.0	
	1120			16.0	1.8	0	0	7.0	

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-6

Vapor Monitoring Well SS06-MP2

Test Location SS06-MP2B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1846			1.6	13.3	25.9	0.0	308	
	1847			2.0	12.9	24.0	0.0	337	
	1848			2.3	12.7	21.8	0.0	365	
	1849			2.6	12.4	19.8	0.0	386	
	1850						0.0	401	
	1851			3.3	12.1	17.6	0.0	411	
	1852			3.2	11.9	16.9	0.0	423	
	1853			3.4	11.8	16.4	0.0	431	
<hr/>									
11/12/97	2002			17.8	2.2	8.3	0.0		
	2003								
	2004								
	2005			17.8	2.2	5.2	0.0		
	2006			17.9	2.2	4.5	0.0		
	2007			17.9	2.2	4.0	0.0		
	2008			17.9	2.2	3.6	0.0		
	2009			17.9	2.2	3.2	0.0	2028	1950
11/13/97	10:15		PURGING						
	10:25			14.2	4.6	0.3		304	
11/13/97	4:20	1.43							
	4:38	1.43							
	5:00	1.42							
	5:54	1.36							
	10:00 PM	1.41							
11/14/97	4:00 AM	1.40							
	9:20								
11/15/97	3:20	0.56							
	3:25								
11/17/97	12:15 PM	2.89		20.0	0.0	0.0		57.1	
				18.7	0.0	0.0		74.0	

**M&E**



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06 HP 2-B

Test Location SS06-MP 2B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/18/97	1225			21.0	0.00	0.00		55.6*	ABR
	1228			21.0	0.00	0.00		51.0	new sim 30000 new base
	1231			21.0	0.00	0.00		49.0	
	1234	0.78		21.0	0.0	0.00		47.0	
11/19/97	1652			20.1	0.0	0.0		9.6	SJ
	1656			20.2	0.0	0.0		9.0	
	1703	0.75		20.3	0.0	0.0		8.3	
11/20/97	1604	0.84							
	1614			20.4	0	0	0	12.6	SJ
	1619			20.5	0	0	0	11.9	
	1623			20.5	0	0	0	11.9	
11/21/97	1333	0.99							
	1337			20.6	0	0	0	16.5	SJ
	1341			20.6	0	0	0	21.2	
	1344			20.6	0	0	0	28.5	
	1347			20.6	0	0	0	30.4	
11/22/97	1342	0.71							SJ
	1405			19.4	0.4	0	0	12.7	
	1408			19.5	0.4	0	0	14.2	
	1411			19.6	0.4	0	0	11.1	
11/23/97	1806	0.86							SJ
	1809			20.1	0.2	0	0	263	
	1812			20.3	0.3	0	0	249	
	1815			20.3	0.2	0	0	232	
11/24/97	1240	-0.09							
	1242			16.3	1.5	17.2	0	335	SJ
	1253			16.5	1.7	16.0	0	328	
	1256			16.4	1.7	16.5	0	326	



# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 1-D (CIV) Test Location SS06

Date	Time	Water Level (feet bTOC)	Temp. (°F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
		MP 1-D			DO % DO mg/L		SPC (mS)	
11/17/97	1150 AM	0.861/0.66	6.02	6.62	8.5	-2.7	1.327	JA
	1157	0.869/0.67	5.95	6.64	7.2	-10.1	1.337	
	1200	0.876/0.67	5.91	6.65	7.0	-13.8	1.349	
							SPC	
11/18/97	1038	0.828/0.64	8.21	6.70	11.7/1.33	1.50	1.271	ASR
	1042	0.841/0.65	8.72	6.72	6.8/0.78	-7.9	1.302	
	1045	0.861/0.67	8.89	6.72	6.3/0.72	-6.2	1.330	
	1050	0.885/0.69	9.00	6.72	5.7/0.65	-21.9	1.368	
	1055	0.903/0.70	8.89	6.72	5.6/0.65	-26.4	1.392	
11/19/97	1416	0.431/0.32	8.86	6.67	11.4/1.31	-30.5	0.663	SJ
	1429	0.435/0.33	8.61	6.67	10.2/1.19	-33.5	0.670	
	1439	0.435/0.33	8.91	6.68	8.9/1.03	-28.6	0.670	
11/20/97	1355	0.419/0.32	10.01	6.67	10.8/1.22	-43.0	0.650	SJ
	1400	0.430/0.32	9.92	6.71	10.6/1.19	-45.4	0.664	
	1405	0.435/0.33	9.83	6.73	10.2/1.15	-49.5	0.670	
	1416	0.472/0.36	9.76	6.73	10.5/1.20	-57.3	0.744	
11/21/97	1026	0.269/0.20	6.69	6.69	26.3/3.57	21.7	0.419	SJ
	1031	0.282/0.21	6.98	6.77	11.3/1.34	-14.5	0.435	
	1035	0.292/0.22	7.37	6.82	8.7/1.04	-37.9	0.451	
	1044	0.322/0.23	7.59	6.86	8.1/0.96	-59.1	0.482	
	1102	0.342/0.26	7.78	6.89	9.5/1.13	-69.7	0.529	
11/22/97	1105	0.344/0.20	5.71	6.65	31.4/3.92	-44.4	0.529	SJ
	1110	0.349/0.26	4.80	6.71	35.1/4.53	-48.5	0.576	
	1122	0.373/0.23	5.07	6.82	28.2/4.21	-46.9	0.420	
11/23/97	1116	0.318/0.24	4.56	6.85	38.8/4.47	-14.4	0.465	SJ
	1123	0.291/0.21	4.99	6.94	24.9/2.97	-16.2	0.433	
	1142	0.276/0.25	5.38	6.99	16.1/2.89	-15.8	0.418	
11/24/97	1139	0.253/0.19	8.41	7.14	9.9/1.16	-31.7	0.390	SJ
	1145	0.257/0.19	8.35	7.16	10.6/1.24	-43.2	0.397	
	1150	0.261/0.19	8.34	7.18	11.2/1.32	-48.9	0.403	
	1155	0.268/0.20	8.46	7.19	12.2/1.43	-51.7	0.415	

**M&E**

1200 0.274/0.20 8.62 7.20 12.9/1.50 -53.4 0.423  
 sample collected for SF6 - 1207  
 1206 0.280/0.21 8.91 7.20 13.2/1.59 -54.5 0.432

### Groundwater Monitoring Well

MP 1-D (Gw)

### Test Location

SS 06

Date	Time	TDS / SAL	Temp. (F)	pH	DO (mg/L)	ORP	SPC.m.s	Operator
		Water Level (feet bTOD)					Purge Rate (gpm)	
11/25/97	1515	0.264/0.20	10.28	7.28	10.1/1.12	18.4	0.404	SJ
	1520	0.264/0.20	10.28	7.35	7.9/0.87	-2.4	0.407	
	1525	0.269/0.20	9.95	7.37	7.1/0.86	-21.1	0.415	
	1528	0.270/0.20	9.99	7.36	6.9/0.78	-26.9	0.415	
	1531	0.271/0.20	9.93	7.35	6.8/0.76	-27.8	0.419	
11/26/97	1044	0.237/0.18	8.76	7.14	15.7/1.83	-19.8	0.366	SJ
	1052	0.239/0.18	8.70	7.15	15.8/1.84	-28.4	0.369	
	1057	0.244/0.18	8.55	7.17	15.4/1.72	-42.4	0.373	
	1102	0.245/0.18	8.46	7.21	13.7/1.60	-52.9	0.378	
	1104	0.247/0.18	8.54	7.22	11.4/1.34	-58.6	0.380	
	1106	0.247/0.18	8.46	7.23	11.5/1.36	-60.7	0.380	
11/28/97	1250	0.266/0.20	10.08	6.95	10.3/1.16	-13.8	0.408	FA
	1300	0.269/0.20	10.47	7.13	10.6/1.18	-45.2	0.414	
11/30/97	1630	0.264/0.20	7.96	6.99	40.1/4.75	23.2	0.406	
	1635	0.268/0.20	7.16	7.05	45.0/5.47	10.0	0.412	
12/2/97	0920	0.262/0.19	8.28	6.77	5.0/0.59	8.3	0.404	SJ
	0955	0.266/0.20	7.34	7.17	4.4/0.53	-83.4	0.411	
	1011	0.269/0.20	7.29	7.18	4.4/0.53	-87.0	0.415	
	1018	0.269/0.20	7.40	7.19	4.4/0.53	-87.6	0.412	
12/4/97	1021	0.299/0.20	8.96	6.84	4.6/0.52	-0.5	0.460	SJ
	1026	0.300/0.22	9.09	6.92	4.3/0.49	-17.3	0.462	
	1031	0.300/0.22	9.63	6.99	4.2/0.47	-33.4	0.462	
	1036	0.304/0.23	9.39	7.04	4.3/0.50	-42.5	0.467	
12/13/97	1130	0.423/0.28	5.02	6.98	8.0/1.01	34.8	0.655	SJ
	1135	0.424/0.28	4.95	6.98	7.4/0.95	27.1	0.652	
	1140	0.426/0.28	4.84	6.98	6.9/0.88	18.4	0.653	
	1154	0.424/0.28	4.83	6.98	6.8/0.86	14.1	0.653	

M&amp;E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 1-E (G10)

Test Location SS06

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	1215PM	0.676/0.51	5.27	6.96	39.2	-26.2	0.993	FA
	1220	0.554/0.42	5.61	6.98	5.7	-65.4	0.850	
	1230	0.553/0.42	5.57	6.98	5.1	-70.6	0.851	
					DO: 1.20			
11/18/97	1105	0.552/0.42	8.81	7.03	4.5/0.51	-63.5	0.852	ABR
	1110	0.555/0.42	8.83	7.05	4.1/0.47	-70.6	0.855	
	1115	0.558/0.42	8.84	7.06	3.8/0.44	-71.8	0.859	
	1120	0.560/0.43	9.02	7.06	3.8/0.43	-75.0	0.863	
	1125	0.563/0.43	8.91	7.06	3.7/0.43	-77.0	0.866	
11/19/97	1449	0.303/0.22	8.58	6.90	9.1/1.06	-47.2	0.459	SJ
	1456	0.291/0.22	8.34	6.92	6.7/0.79	-50.7	0.448	
	1503	0.292/0.22	8.58	6.99	6.1/0.71	-55.8	0.450	
11/24/97	1429	0.321/0.24	8.90	6.94	25.3/2.76	91.9	0.438	SJ
	1434	0.261/0.19	9.06	7.02	8.5/0.98	58.3	0.401	
	1443	0.251/0.19	9.15	7.10	5.6/0.64	-80.5	0.388	
	1457	0.250/0.19	9.38	7.13	5.0/0.57	-105.4	0.384	
11/21/97	1108	0.357/0.27	7.27	6.91	22.8/2.84	-64.7	0.551	SJ
	1113	0.243/0.18	6.94	7.13	14.9/1.79	-70.3	0.364	
	1119	0.216/0.16	7.53	7.16	9.7/1.18	-89.0	0.332	
	1124	0.215/0.16	7.09	7.16	10.1/1.22	-92.6	0.330	
11/24/97	1135	0.244/0.18	7.01	7.21	30.9/3.76	-57.1	0.376	SJ
	1142	0.244/0.18	7.33	7.06	36.0/4.74	-49.3	0.374	
	1147	0.244/0.18	7.24	7.07	38.8/4.71	-48.8	0.376	
11/23/97	1159	0.258/0.19	5.97	7.15	38.0/4.72	-17.7	0.3991	SJ
	1205	0.221/0.16	5.47	7.25	50.1/6.33	-7.3	0.334	
	1315	0.212/0.16	6.25	7.39	46.8/5.71	13.0	0.326	
11/24/97	1216	0.293/0.22	7.54	7.19	27.1/3.71	-51.3	0.456	S.P.
	1222	0.214/0.16	8.57	7.38	59.0/6.88	-14.6	0.326	
	1231	0.210/0.15	8.39	7.42	51.4/6.02	6.8	0.322	SJ
	1243	0.208/0.15	8.55	7.45	50.7/5.92	20.4	0.319	

1247 Sampling

1251 0.207/0.15 8.58 7.47 57.6/6.80 26.2 0.318

**M&E**

Groundwater Monitoring Well MP1E Test Location SS06

MP 1E

SSC: 6

Date	Time	TDS/sAL Water Level (feet bTOC)	Temp. (°F)	pH	DO (mg/L)	ORP	SPC ms Purge Rate (gpm)	Operator
11/25/97	1535	0.219/0.16	9.77	7.47	45.2/5.01	-44.5	0.326	SJ
	1538	0.211/0.16	9.81	7.46	40.1/4.43	-40.0	0.320	
	1542	0.206/0.15	9.74	7.43	29.2/3.30	-31.0	0.317	
	1547	0.203/0.15	9.64	7.42	22.6/2.7	-15.9	0.320	
	1551	0.204/0.15	9.65	7.41	23.0/2.61	-13.2	0.320	
11/26/97	1113	0.245/0.18	7.63	7.32	34.9/4.16	-53.8	0.373	SJ
	1117	0.232/0.17	7.76	7.34	30.3/3.50	-41.0	0.351	
	1120	0.224/0.17	7.74	7.35	26.2/3.11	-33.0	0.344	
	1124	0.221/0.16	7.69	7.36	22.7/2.70	-24.7	0.338	
	1128	0.218/0.16	7.61	7.37	21.6/2.57	-18.4	0.334	
	1131	0.216/0.16	7.59	7.39	21.7/2.54	-18.3	0.336	
11/28/97	1320	0.238/0.18	9.62	7.30	15.6/1.76	-32.6	0.366	FA
	1335	0.238/0.15	9.73	7.33	15.2/1.73	2.0	0.366	
11/30/97	1640	0.263/0.20	7.78	7.14	27.4/3.26	-1.8	0.406	
	1645	0.266/0.20	7.94	7.17	26.9/3.19	4.1	0.410	
12/2/97	1025	0.270/0.20	7.96	7.18	7.5/0.87	-81.7	0.417	SJ
	1034	0.273/0.20	8.17	7.16	4.2/0.50	-66.8	0.422	
	1039	0.273/0.20	8.33	7.15	4.2/0.50	-61.7	0.419	
	1045	0.274/0.20	7.82	7.15	4.3/0.52	-56.6	0.423	
12/4/97	1044	0.344/0.25	8.83 7.04	7.04	5.8/0.62	-42.6	0.522	SJ
	1049	0.340/0.25	8.78	7.05	4.9/0.58	-40.7	0.522	
	1055	0.330/0.25	8.89	7.05	4.5/0.52	-37.6	0.509	
	1059	0.330/0.25	8.96	7.06	4.5/0.52	-36.5	0.508	
12/13/97	1212	0.426/0.32	4.40	7.02	27.3/3.56	-24.3	0.669	SJ
	1218	0.449/0.34	5.0	6.95	20.7/2.62	-23.7	0.693	
	1222	0.453/0.34	5.19	6.85	14.2/1.79	-20.9	0.696	
	1226	0.454/0.34	5.37	6.88	11.3/1.42	-18.2	0.697	

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well KP1-F (G10)

Test Location SS-06

Date	Time	TS / SAL Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	SPL / Purge Rate (gpm)	Operator
	1250							
11/17/97	1245 PM	0.579/0.44	5.81	7.60	13.4	-58.4	0.876	FA
	1257	0.576/0.44	7.89	7.14	4.9	-92.8	0.886	
	1051 PM	0.571/0.44	8.08	7.15	4.5	-99.8	0.891	
11/18/97	1130	0.566/0.43	8.43	7.18	6.0/0.69	-76.9	0.874	ASR
	1135	0.572/0.43	8.39	7.20	3.6/0.42	-83.0	0.879	
	1140	0.574/0.44	8.45	7.22	3.4/0.40	-81.7	0.885	
	1145	0.575/0.44	8.48	7.22	3.2/0.38	-83.3	0.886	
11/19/97	1514	0.310/0.23	5.18	7.07	26.3/3.33	-47.5	0.476	SJ
	1520	0.309/0.23	4.91	7.06	23.5/2.95	-53.0	0.475	
	1525	0.309/0.23	4.87	7.12	16.8/2.21	-51.8	0.476	
	1530	0.303/0.23	6.95	7.09	8.3/1.01	-47.1	0.471	
	1535	0.313/0.23	7.37	7.13	6.0/0.73	-57.2	0.484	
	1545	0.314/0.23	6.35	7.15	5.5/0.74	-73.1	0.485	
11/20/97	1517	0.296/0.22	8.60	7.14	5.5/0.64	-110.3	0.463	SJ
	1521	0.306/0.23	8.48	7.16	5.1/0.60	-113.3	0.471	
	1527	0.304/0.23	8.66	7.18	5.0/0.59	-117.9	0.468	
	1533	0.305/0.23	8.49	7.17	4.9/0.58	-117.6	0.469	
	1538	0.303/0.23	8.52	7.18	4.9/0.57	-120.4	0.466	
11/21/97	1131	0.280/0.21	6.69	7.06	18.4/2.14	-71.5	0.435	SJ
	1136	0.295/0.22	7.69	7.00	8.5/1.01	-71.4	0.459	
	1144	0.311/0.23	6.98	7.04	8.6/1.05	-84.3	0.480	
	1151	0.311/0.23	6.90	7.05	8.3/1.00	-88.1	0.478	
11/22/97	1155	0.234/0.18	6.23	7.19	57.7/7.18	-44.5	0.366	SJ
	1159	0.252/0.19	3.67	7.25	64.0/8.13	-39.5	0.407	
	1220	0.315/0.23	6.67	6.98	11.3/1.37	-57.5	0.483	
11/23/97	1323	0.210/0.16	6.89	7.41	56.8/7.08	-0.5	0.385	SJ
	1328	0.302/0.22	5.96	7.16	17.1/2.21	6.8	0.467	
	1335	0.309/0.23	5.95	7.11	13.9/1.74	8.3	0.473	
11/24/97	1302	0.208/0.15	8.24	7.47	51.9/6.08	35.9	0.321	SJ

1311 0.208/0.15 8.82



1315 Sampling

1319 0.208/0.15 8.91

7.47 52.7/6.07 39.9 0.320

52.2/6.03 40.1 0.320

5506

Date	Time	TSD/SAL Water Level (feet bTOD)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/25/97	1600	0.201/0.24	9.24	7.14	36.7/4.20	-1.8	0.452	SJ
	1605	0.315/0.24	9.20	7.09	30.5/3.50	-26.1	0.485	
	1610	0.316/0.24	9.19	7.08	28.9/3.31	-34.7	0.487	
	1617	0.316/0.24	9.05	7.08	27.5/3.17	-41.5	0.486	
	1622	0.315/0.24	9.02	7.08	27.1/3.13	-44.6	0.485	
11/26/97	1136	0.253/0.19	6.92	7.26	40.8/5.04	-0.2	0.419	SJ
	1141	0.304/0.23	7.68	7.14	43.6/5.17	-14.8	0.473	
	1146	0.314/0.23	7.82	7.11	39.4/4.68	-30.0	0.486	
	1151	0.317/0.23	7.79	7.09	36.9/4.39	-38.5	0.489	
11/28/97	1355	0.303/0.23	9.08	7.15	56.1/6.45	20.0	0.464	FA
	1405	0.320/0.24	9.21	7.11	46.2/5.30	-7.5	0.493	
11/30/97	1700	0.321/0.24	7.66	7.17	76.1/9.07	31.2	0.495	
	1705	0.320/0.24	7.74	7.17	75.3/8.96	29.9	0.493	
12/2/97	1052	0.314/0.23	7.31	7.14	48.5/6.03	-44.0	0.489	SJ
	1057	0.319/0.24	7.53	7.14	56.9/6.81	-30.6	0.492	
	1102	0.317/0.24	7.77	7.13	53.8/6.41	-27.9	0.488	
	1110	0.317/0.24	7.77	7.12	52.0/6.18	-27.6	0.486	
12/4/97	1109	0.345/0.26	8.65	7.12	45.7/5.68	-30.7	0.534	SJ
	1114	0.348/0.26	8.35	7.15	57.2/6.67	-19.2	0.533	
	1120	0.345/0.26	8.22	7.14	52.2/6.15	-11.3	0.531	
	1127	0.343/0.26	8.43	7.14	49.9/5.83	-9.0	0.528	
12/13/97	1241	0.361/0.27	5.35	7.14	63.2/7.96	-8.3	0.552	SJ
	1243	0.356/0.26	5.45	7.15	61.2/7.70	-5.1	0.546	
	1248	0.351/0.26	5.28	7.15	58.0/7.34	-1.1	0.540	
	1252	0.350/0.26	5.20	7.15	55.5/7.03	5.9	0.538	

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well HP 2-D (616)

Test Location \_\_\_\_\_

Date	Time	Water Level (feet b/OC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	1:15	1.160/0.91	9.7	6.4	7.2	-43.2	1.928	JA
	1:17 PM	1.32/1.04	9.73	6.41	2.77	-49.5	2.036	JAP
	1:22 PM	1.325/1.05	9.67	6.42	0.76	-51.8	2.033	JAP
	1:27 PM	1.325/1.05	9.52	6.42	0.76	-53.2	2.037	JAP
11/18/97	1155	1.34/1.04	9.39	6.48	6.3/0.71	-39.2	2.022	ASR
	1200	1.317/1.04	9.62	6.48	6.3/0.71	-39.3	2.027	ASR
	1205	1.319/1.04	9.42	6.48	6.5/0.74	-38.7	2.028	ASR
	1210	1.319/1.04	9.89	6.48	6.5/0.73	-39.7	2.029	ASR
	1215	1.319/1.04	9.49	6.48	6.7/0.76	-40.5	2.029	ASR
11/19/97	1557	0.559/0.43	8.75	6.50	19.0/2.22	-29.1	0.934	SJ
	1602	0.662/0.51	9.58	6.45	24.9/2.83	-23.4	1.025	
	1610	0.679/0.52	9.55	6.46	25.4/2.89	-22.4	1.050	
	1615	0.695/0.53	9.62	6.45	24.9/2.82	-15.8	1.066	
	1618	0.692/0.53	9.64	6.45	24.8/2.80	-15.7	1.065	
11/20/97	1551	0.566/0.43	9.87	6.58	28.4/3.22	-15.4	0.886	SJ
	1556	0.603/0.46	9.84	6.57	29.2/3.32	-15.8	0.936	
	1541	0.617/0.47	9.92	6.56	29.1/3.29	-16.8	0.952	
	1612	0.626/0.48	9.57	6.56	29.0/3.30	-17.2	0.961	
11/21/97	1155	0.313/0.23	7.67	7.05	26.4/3.25	-74.5	0.482	SJ
	1205	0.554/0.42	7.56	6.57	23.9/2.85	4.2	0.867	
	1210	0.578/0.43	8.23	6.55	23.7/2.78	5.1	0.882	
	1217	0.581/0.44	8.34	6.54	24.2/2.82	3.4	0.893	
11/22/97	1325	0.475/0.36	6.59	6.64	25.1/3.02	-6.8	0.747	SJ
	1330	0.517/0.36	7.09	6.62	23.4/2.82	7.3	0.807	
	1336	0.565/0.43	6.94	6.51	22.2/2.61	10.1	0.874	
11/23/97	1347	0.495/0.37	5.03	6.80	35.2/4.51	29.1	0.783	SJ
	1353	0.539/0.41	4.20	6.74	34.4/4.46	48.6	0.832	
	1400	0.565/0.43	4.26	6.68	34.6/4.50	60.9	0.869	
11/24/97	1329	0.371/0.20	8.76	6.94	38.7/4.46	63.4	0.591	
	1339	0.479/0.38	9.34	6.80	36.3/4.15	51.9	0.767	J.P.

1347 0.510/0.39 9.02 **M&E** 35.7/4.11 42.4 0.782 J.P.  
 1352 0.509/0.39 9.53 6.76 35.6/4.05 39.0 0.783 J.P.

SFC sample collected at 13:54



**Test Location** 5506

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well WP 2-E (GIV) Test Location SS 06

Date	Time	TDS / Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	1:23 PM	<del>0.721/1.10</del>						
	1:35 PM	0.721/1.10	8.74	6.93	4.9	-97.7	1.104	JAP
	1:50 PM	0.693/0.53	8.86	6.95	4.2	-105.0	1.067	FA
11/18/97	13:54	0.651/0.50	8.53	7.15	4.3/0.50	-39.4	1.001	JAP
	14:06	0.648/0.49	8.44	7.17	3.5/0.41	-47.6	0.996	JAP
	14:16	0.646/0.49	8.63	7.19	3.2/0.37	-56.3	0.994	ASL
	14:21	0.645/0.49	8.43	7.18	3.2/0.37	-58.6	0.993	ASL
11/18/97	1431	0.698/0.54	8.65	7.06	3.3/0.39	-65.7	1.072	ASL
	1444	0.700/0.54	8.92	7.04	3.2/0.38	-75.2	1.075	AM
	1451	0.695/0.53	8.79	7.03	3.2/0.37	-76.3	1.069	AM
11/19/97	1623	0.689/0.53	8.53	6.41	2.6/0.325	-12.7	1.069	SJ
	1632	0.369/0.28	9.01	6.92	7.0/0.86	-40.2	0.567	
	1640	0.364/0.27	9.18	6.92	6.2/0.71	-46.9	0.560	
	1645	0.364/0.27	9.06	6.92	5.9/0.68	-49.8	0.560	
11/20/97	1620	0.426/0.32	8.56	6.88	27.4/3.02	-61.9	0.597	SJ
	1627	0.361/0.27	8.76	6.96	7.8/0.89	-84.4	0.552	
	1635	0.353/0.26	8.56	6.97	6.3/0.73	-90.3	0.543	
	1648	0.347/0.26	8.61	6.98	5.7/0.68	-93.3	0.535	
11/21/97	1227	0.591/0.45	8.23	6.63	44.8/5.49	-4.8	0.910	SJ
	1234	0.374/0.28	7.29	6.95	9.0/1.07	-76.9	0.557	
	1241	0.334/0.25	8.30	6.97	6.7/0.79	-87.1	0.515	
	1246	0.333/0.25	8.40	6.98	6.9/0.82	-89.7	0.514	
11/22/97	1401	0.341/0.25	6.95	7.06	8.6/1.05	-51.8	0.524	
	1407	0.340/0.25	6.86	7.06	9.1/1.11	-51.2	0.523	
	1412	0.338/0.25	6.98	7.05	10.1/1.21	-50.7	0.526	
					<del>50.6/6.46</del>	<del>55.5</del>	<del>0.883</del>	
11/23/97	1407	0.574/0.43	5.10	6.72	50.4/6.48	55.5	0.883	SJ
	1416	0.368/0.27	4.03	7.01	11.1/1.43	-18.9	0.554	
	1421	0.357/0.26	4.41	7.04	11.3/1.47	-39.4	0.538	
<del>11/24/97</del>								

**M&E**

Groundwater Monitoring Well MPZ-E (GW) Test Location SS03

M&E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 2-F

Test Location SS06

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	200 PM	0.664/0.51	7.87	7.09	3.6	-110.7	1.021	FA
	208	0.661/0.50	8.01	7.10	3.5	-111.0	1.015	
	230	0.659/0.50	7.96	7.10	3.2	-111.9	1.015	
11/18/97	1359	0.651/0.50	8.53	7.15	4.3/0.50	-39.4	1.001	3AS
	1406	0.648/0.49	8.44	7.17	3.5/0.41	-47.6	0.996	3AS
	1416	0.646/0.49	8.63	7.19	3.2/0.37	-56.3	0.994	ASR
	1421	0.645/0.49	8.43	7.18	3.2/0.37	-58.6	0.993	ASR
11/19/97	1653	0.341/0.26	8.5	7.04	7.5/0.85	-61.7	0.526	SJ
	1700	0.343/0.26	8.59	7.09	5.2/0.41	-59.4	0.528	
	1708	0.346/0.26	8.62	7.10	4.9/0.57	-58.3	0.533	
	1714	0.348/0.26	8.62	7.10	4.8/0.56	-59.9	0.536	
11/20/97	1653	0.346/0.26	8.33	7.03	24.8/2.96	-81.8	0.546	SJ
	1659	0.341/0.25	8.02	7.11	6.9/0.80	-100.3	0.524	
	1705	0.344/0.25	7.82	7.15	5.1/0.61	-100.3	0.527	
11/21/97	1249	0.330/0.25	7.75	6.93	14.9/1.80	-84.2	0.508	SJ
	1254	0.331/0.25	7.62	7.04	7.9/0.91	-85.6	0.512	
	1300	0.334/0.25	8.09	7.08	5.6/0.66	-99.2	0.514	
	1305	0.337/0.25	7.58	7.09	5.7/0.68	-102.3	0.519	
11/22/97	1434	0.336/0.25	7.11	7.04	33.5/4.05	-49.3	0.518	SJ
	1439	0.337/0.25	7.01	7.04	33.4/4.05	-48.9	0.516	
	1446	0.336/0.25	6.66	7.05	34.7/4.24	-46.8	0.517	
11/23/97	1435	0.327/0.24	4.54	7.11	10.8/1.34	-50.7	0.487	SJ
	1440	0.326/0.23	5.08	7.12	6.2/0.79	-63.4	0.472	
	1448	0.309/0.23	3.88	7.13	5.6/0.73	-73.0	0.471	
	1452	0.306/0.23	4.00	7.14	5.5/0.71	-74.7	0.470	
11/24/97	1432	0.297/0.22	7.83	7.13	6.5/0.77	-45.5	0.456	SP
	1438	0.295/0.22	8.01	7.14	6.1/0.72	-55.2	0.454	
	1443	0.293/0.22	7.94	7.14	6.2/0.73	-62.0	0.451	
	1447	0.292/0.22	7.78	7.15	6.2/0.74	-65.6	0.449	
sampled for SE <sub>2</sub> at 1448								



11/25/97 1734 0.302/0.23 9.16



# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 3-D

Test Location SS-06

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	3:22	1049/0.82	9.64	6.52	5.6	-56.5	1.624	FA
	3:29	1054/0.82	9.61	6.52	5.7	-58.0	1.623	
	3:34	1060/0.83	9.56	6.52	5.7	-58.0	1.632	
11/18/97	1500	0.915/0.71	8.69	6.72	3.8/0.43	-56.1	1.424	AJA
	1505	0.961/0.75	9.17	6.63	4.4/0.51	-45.3	1.483	
	1511	0.982/0.76	9.28	6.63	4.7/0.53	-44.0	1.514	
	1516	0.992/0.77	9.33	6.61	4.8/0.54	-44.0	1.529	
	1520	1.002/0.78	9.31	6.62	4.8/0.55	-43.4	1.543	
11/19/97	1733	0.741/0.57	9.18	6.40	8.5/0.98	-25.6	1.142	SJ
	1745	0.702/0.54	7.92	6.41	10.9/1.22	-17.2	1.069	JP
	1754	0.718/0.55	9.05	6.42	8.2/0.95	-25.2	1.106	
	1803	0.718/0.55	9.30	6.43	8.1/0.93	-27.6	1.104	
	1813							
11/20/97	1736	0.518/0.39	8.46	6.92	6.5/0.76	-81.0	0.800	SJ
	18:21	0.575/0.44	8.84	6.92	6.6/0.77	-81.3	0.885	JP
	18:30	0.580/0.44	8.96	6.91	7.1/0.82	-83.0	0.890	
	1839	0.579/0.44	9.09	6.91	7.7/0.89	-84.1	0.890	
11/21/97	1319	0.349/0.26	8.58	7.31	6.4/0.75	-78.9	0.541	SJ
	1325	0.374/0.28	8.36	7.12	6.0/0.71	-84.0	0.581	
	1334	0.382/0.29	8.15	7.11	5.8/0.68	-87.4	0.588	
11/22/97	1539	0.305/0.23	8.24	7.21	8.2/0.97	-62.3	0.472	SJ
	1544	0.310/0.23	7.37	7.21	8.309/0.23	-63.4	0.475	
	1549	0.308/0.23	7.23	7.21	8.7/1.05	-65.7	0.421	
11/23/97	1518	0.322/0.24	2.87	7.16	40.1/5.41	-57.6	0.475	SJ
	1523	0.291/0.22	4.82	7.34	36.7/4.69	-44.1	0.447	
	1529	0.293/0.22	5.34	7.41	31.1/3.91	-21.6	0.453	
11/24/97	1456	0.293/0.22	6.96	7.15	20.3/2.63	-62.8	0.472	JP
	1501	0.291/0.22	8.55	7.33	23.7/2.75	-43.6	0.459	
	1508	0.320/0.24	7.88	7.41	19.5/2.30	-26.7	0.495	
	1513	0.322/0.24	8.57	7.42	18.0/2.10	-18.2	0.497	
	1518	0.328/0.24	8.71	7.43	17.5/2.03	-10.5	0.504	

5th sample collected at 1520



MP 3-D

### Test Location

SS 06

[illegible]

M&amp;E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well NP 3-E Test Location SS-06

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	4:07 PM							
	4:30 PM	0.845/1.300	8.93	6.91	0.48/4.2	-90.4	1.295	JAP
	4:45	0.825/1.269	9.03	6.91	0.40/4.0	-92.6	1.270	
11/18/97	1525	0.839/0.65	9.03	6.92	4.7/0.53	-56.9	1.287	ASR
	1530	0.832/0.64	9.10	6.95	4.0/0.46	-62.3	1.280	
	1537	0.826/0.64	8.81	6.96	3.7/0.42	-64.5	1.270	
	1542	0.825/0.64	8.83	6.97	3.6/0.42	-65.2	1.269	
11/19/97	1613	0.396/0.30	9.54	6.80	25.3/2.33	-8.2	0.607	JP
	1618	0.395/0.30	9.82	6.80	26.3/3.01	-4.1	0.612	
	1625	0.404/0.30	9.75	6.82	26.2/2.97	-6.3	0.623	
	1632	0.408/0.31	9.68	6.83	23.7/2.69	-10.4	0.627	
11/20/97	1844	0.569/0.43	8.01	6.94	29.6/3.96	-78.4	0.778	SJ
	1847	0.474/0.35	8.46	6.95	50.1/5.99	-45.7	0.675	
	1850	0.412/0.31	8.52	6.93	55.0/6.40	-6.2	0.623	
	1856	0.396/0.30	8.73	6.92	50.4/5.84	9.3	0.609	
	1902	0.396/0.30	8.87	6.92	47.2/5.45	-0.9	0.610	
11/21/97	1345	0.398/0.30	7.90	6.92	35.6/4.24	-30.6	0.615	SJ
	1402	0.404/0.30	6.85	6.88	35.9/4.36	-15.0	0.621	
	1407	0.403/0.30	7.17	6.87	35.6/4.28	-16.4	0.621	
	1411	0.404/0.30	7.10	6.88	34.8/4.19	-17.1	0.622	
11/22/97	1626	0.324/0.24	7.93	7.19	17.8/2.16	-66.8	0.495	SJ
	1631	0.322/0.24	7.46	7.20	35.2/4.42	-59.3	0.556	
	1636	0.370/0.28	6.36	6.99	26.1/3.22	-33.7	0.526	
11/23/97	1536	0.316/0.23	5.77	7.44	39.3/4.96	-15.8	0.486	SJ
	1541	0.364/0.27	3.61	7.18	38.2/5.06	1.8	0.561	
	1548	0.371/0.28	4.22	6.95	40.5/5.28	32.2	0.574	
11/24/97	1530	0.329/0.25	8.23	7.43	17.2/2.03	-1.0	0.507	JP
	1535	0.330/0.25	7.91	7.43	17.0/2.02	3.1	0.509	
	1540	0.331/0.25	7.38	7.43	17.1/2.06	8.1	0.510	
	1545	0.331/0.25	7.05	7.43	17.2/2.09	10.7	0.510	
Sampled for SF6 at 1548 Pump not purging.								

1554 0.314/0.23 5.72/7.17  
 1600 0.332/0.25 6.55/7.04  
 1605 0.341/0.25 6.80/7.00  
 1610 0.345/0.26 6.56/6.98  
 Sampled for SF6 at 1613

**M&E**

42.0/5.29 22.1 0.486  
 51.8/6.34 14.6 0.512  
 52.2/6.36 6.0 0.527  
 50.2/6.16 3.6 0.533



## GROUNDWATER MONITORING WELL RECORD

### WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 3 E

Test Location SS06

Date	Time	TDS/SAL Water Level (feet bT/C)	Temp. (°F)	pH	DO (mg/L)	ORP	SPE Purge Rate (gpm)	Operator
11/25/97	1814	0.318/0.24	8.87	7.12	10.4/1.17	-22.1	0.497	SJ
	1819	0.321/0.25	8.95	6.96	6.5/0.75	-41.2	0.510	
	1825	0.339/0.25	8.96	6.95	7.1/0.83	-48.4	0.524	
	1837	0.344/0.26	8.86	6.95	8.7/1.01	-49.5	0.528	
11/26/97	1507	0.331/0.25	8.96	6.99	16.2/1.06	-51.2	0.519	SJ
	1512	0.347/0.26	8.83	6.98	16.4/1.90	-56.6	0.535	
	1518	0.350/0.26	8.95	6.97	17.6/2.04	-58.9	0.540	
	1525	0.350/0.26	8.80	6.97	16.9/1.97	-58.9	0.539	
11/28/97	1705	0.346/0.26	3.93	7.06	55.3/7.25	-21.4	0.532	FA
OK -	1715	0.342/0.26	8.52	7.05	8.0/0.93	-38.1	0.530	
	1720	0.347/0.26	8.86	7.05	8.3/0.97	-43.0	0.535	
11/30/97	1825	0.418/0.31	8.49	7.04	4.0/0.47	-61.9	0.644	
	1830	0.418/0.31	9.00	7.06	4.3/0.50	-66.8	0.642	
					6.9			
12/2/97	1834	0.465/0.35	8.72	6.95	13.0/0.71	-83.9	0.712	SJ
	1845	0.469/0.35	8.25	6.97	5.8/0.67	-90.7	0.721	
	1850	0.468/0.35	8.06	6.97	6.1/0.68	-92.1	0.720	
12/13/97	1447	0.513/0.39	4.66	6.99	31.5/4.01	-17.9	0.804	SJ
	1450	0.483/0.36	5.28	7.00	25.9/3.23	-20.5	0.720	
	1454	0.439/0.33	5.90	6.96	16.1/2.00	-24.3	0.671	
	1500	0.429/0.32	7.53	6.93	11.4/1.36	-29.7	0.662	

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP-4 D

Test Location 55-06

Date	Time	TDS / SAL Water Level (feet bTOD)	Temp. (F)	pH	DO %/ DO (mg/L)	ORP	S/C Purge Rate (gpm)	Operator
11/25/97	1854	0.333/0.25	7.95	7.60	98.9/11.73	-74.3	0.521	APR
	2147	0.510/0.39	9-11	7.14	24.7/2.64	22.4	0.810	SJ
	2152	0.552/0.40	9.24	6.88	8.7/1.00	-36.1	0.857	
	2158	0.589/0.44	9.25	6.81	9.8/1.13	-40.0	0.896	
11/26/97	1610	0.55/0.39	8.63	6.70	18.0/2.11	-34.1	0.803	FA
	1615	0.604/0.46	8.0	6.67	22.1/2.61	-33.5	0.929	
	1625	0.602/0.46	8.19	6.67	20.5/2.45	-33.9	0.925	
11/28/97	1740	0.605/0.46	9.53	6.65	14.9/1.70	-21.3	0.934	
	1750	0.623/0.48	9.60	6.64	15.8/1.80	-19.7	0.959	
11/30/97	1850	0.639/0.49	9.69	6.65	4.8/0.54	-23.0	0.983	
	1855	0.644/0.49	9.84	6.63	4.8/0.54	-20.1	0.991	
12/2/97	1513	0.612/0.47	8.54	6.60	13.3/1.54	-27.1	0.949	SJ
	1518	0.						
	1542	0.629/0.48	8.34	6.50	6.9/			
	1720	0.635/0.48	8.49	6.51	5.3/0.62	-30.2	0.976	SJ
	1723	0.635/0.49	8.60	6.51	5.3/0.61	-30.5	0.979	
12/13/97	1517	0.581/0.45	5.72	6.85	66.9/8.35	-11.3	0.984	SJ
	1523	0.708/0.54	5.78	6.65	19.3/2.38	-5.807	1.095	
	1528	0.711/0.54	5.55	6.61	15.1/1.88	-2.0	1.094	

# M&E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 4-D

Test Location SS-06

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	450PM	1.002/0.78	8.91	6.68	7.8	-48.3	1.573	FA
	500PM	1.128/0.88	9.76	6.59	5.5	-60.0	1.736	
	510PM	1.144/0.90	9.82	6.58	5.5/0.13	-67.5	1.764	JAP
	520PM	1.163/0.92	9.66	6.58	5.5/0.11	-67.5	1.793	
11/18/97	15:56	1.114/0.87	8.84	6.66	4.9/0.57	-40.3	1.716	JAP
	1602	1.123/0.88	8.90	6.66	5.1/0.58	-39.0	1.729	AR
	1608	1.129/0.88	8.84	6.65	5.2/0.60	-38.3	1.738	AR
	1614	1.134/0.89	9.05	6.65	5.2/0.59	-38.0	1.747	AR
	1620	1.141/0.89	9.06	6.64	5.3/0.61	-38.3	1.757	AR
	1625	1.147/0.90	8.84	6.64	5.3/0.62	-40.0	1.774	AR
11/19/97								
11/19/97	18:41	0.564/0.43	10.22	6.55	7.4/0.83	-24.1	0.909	JP
	18:47	0.633/0.48	10.27	6.54	7.0/0.78	-28.5	0.977	
	18:55	0.653/0.50	10.18	6.55	7.1/0.79	-31.8	1.006	
	1900	0.662/0.51	9.89	6.56	7.0/0.80	-33.0	1.022	
11/20/97	1915	0.399/0.30	8.21	7.41	93.8/11.10	-61.4	0.613	SJ
	1920	0.398/0.30	7.94	7.62	100.5/11.92	-75.6	0.611	
	1925	0.394/0.30	7.44	7.92	106.5/12.80	-73.7	0.606	
11/21/97	1429	0.542/0.41	5.31	7.02	68.2/8.20	-50.9	0.826	SJ
	1437	0.574/0.44	7.51	6.63	14.4/1.71	-49.9	0.893	
	1443	0.591/0.45	7.49	6.61	8.9/1.06	-52.3	0.912	
	1453	0.604/0.46	7.42	6.60	7.7/0.72	-56.3	0.732	
11/22/97	1652	0.404/0.30	6.31	7.17	81.9/10.12	-40.1	0.610	SJ
	1703	0.430/0.32	3.11	7.11	367/4.39	-42.8	0.619	
	1708	0.396/0.30	5.79	6.87	11.9/1.45	-52.4	0.615	
11/24/97	1624	0.534/0.41	6.75	6.70	102/1.23	-10.1	0.843	JP
	1630	0.600/0.46	6.88	6.68	7.4/1.14	-29.3	0.925	
	1635	0.605/0.46	7.08	6.69	9.2/1.11	-23.4	0.935	
	1640	0.616/0.47	6.89	6.68	9.0/1.09	-36.0	0.948	
	1645	0.614/0.47	7.19	6.69	8.7/1.05	-37.9	0.945	
Sampled for SF6 at 1647								

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 4-E

Test Location 5506

Date	Time	Water Level (feet bFOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	5:27	0.879/0.68	8.58	6.78	11.1/1.28	-60.3	1.329	JAP
	5:32	0.834/0.64	8.73	6.80	6.4/0.74	-77.6	1.280	
	5:43	0.818/0.63	8.62	6.81	4.2/0.48	-86.9	1.260	
	5:50	0.817/0.63	8.50	6.81	4.0/0.46	-87.5	1.257	
11/18/97	1637	0.834/0.64	7.94	6.86	4.4/0.52	-69.9	1.282	ASR
	1645	0.823/0.63	7.95	6.88	3.9/0.46	-72.3	1.266	ASR
	1650	0.819/0.63	8.15	6.88	3.8/0.44	-73.0	1.258	ASR
	1657	0.814/0.63	7.95	6.88	3.8/0.44	-73.0	1.252	ASR
	1707	0.812/0.63	8.08	6.88	3.7/0.43	-72.8	1.249	ASR
11/19/97	1916	0.829/0.32	9.29	6.80	5.4/0.61	-57.7	0.660	JP
	1924	0.430/0.32	9.40	6.81	5.2/0.60	-61.5	0.661	
	1930	0.430/0.32	9.37	6.81	5.2/0.59	-61.3	0.662	
11/20/97	1939	0.389/0.29	6.18	8.27	110.1/13.64	-3.1	0.598	SJ
	1943	0.388/0.29	5.89	8.31	110.5/13.77	6.9	0.597	
	1948	0.388/0.29	5.61	8.34	110.6/13.89	15.1	0.596	
11/21/97	1508	0.543/0.39	5.66	6.78	33.0/4.05	-65.3	0.742	SJ
	1529	0.413/0.31	6.41	6.79	5.6/0.69	-80.7	0.633	
	1535	0.412/0.31	6.50	6.80	5.6/0.68	-80.6	0.634	
11/22/97	1733	0.484/0.36	6.27	6.91	6.61/7.72	-59.8	0.621	SJ
	1738	0.454/0.38	6.39	6.97	58.2/7.01	-54.7	0.820	
	1745	0.553/0.42	6.55	6.78	7.4/0.90	-45.9	0.857	
11/24/97	1657	0.429/0.32	6.26	6.82	10.2/1.22	-55.4	0.629	JP
	1702	0.397/0.30	6.32	6.82	7.5/0.93	-62.2	0.610	
	1707	0.393/0.29	6.32	6.82	7.1/0.89	-64.3	0.604	
	1718	0.393/0.29	6.61	6.82	6.8/0.83	-66.3	0.604	SJ
	1726	0.397/0.30	6.95	6.82	7.0/0.85	-67.8	0.611	
	1730	Sampling						
11/25/97	1009	0.414/0.31	8.68	6.86	11.3/1.28	-66.9	0.628	SJ
	1014	0.400/0.30	8.68	6.85	8.9/1.03	-70.8	0.614	
	1019	0.386/0.30	8.61	6.86	8.3/0.96	-71.4	0.608	

**M&E**

## GROUNDWATER MONITORING WELL RECORD

### WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS 06

Test Location *MP 4-E*

Date	Time	TDS/SAL	Temp. (F)	pH	DO (mg/L)	ORP	SALMS Purge Rate (gpm)	Operator
		Water Level (feet) TOC						
11/26/97	1640	0.408/0.31	8.10	6.83	18.7/2.2	-66.5	0.626	FA
	1650	0.401/0.30	8.27	6.83	18.7/2.19	-67.5	0.617	
11/28/97	1805	0.395/0.30	8.75	6.85	13.2/1.54	-50.2	0.606	
	1815	0.389/0.29	8.62	6.87	12.7/1.48	-55.6	0.599	
11/30/97	1905	0.399/0.30	8.80	6.85	4.1/0.47	-61.6	0.612	
	1910	0.392/0.29	8.90	6.87	3.7/0.43	-67.0	0.604	
12/2/97	1731	0.413/0.31	7.66	6.74	6.8/0.78	-66.7	0.626	SJ
	1736	0.397/0.30	7.80	6.79	4.7/0.56	-77.8	0.605	
	1741	0.387/0.29	7.76	6.80	4.5/0.53	-81.9	0.593	
	1745	0.383/0.29	7.77	6.81	4.3/0.51	-83.6	0.588	
12/13/97	1543	0.549/0.41	6.46	6.73	26.0/3.15	-13.7	0.827	SJ
	1548	0.513/0.39	7.26	6.75	13.2/1.58	-27.5	0.787	
	1553	0.511/0.39	6.85	6.76	13.1/1.59	-30.7	0.784	
	1557	0.511/0.39	6.44	6.76	19.3/1.58	-35.6	0.786	

M&amp;E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP 5-D

Test Location \_\_\_\_\_

Date	Time	Water Level (feet b/TOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	<del>5:55 AM</del>	<del>2.25/0.63</del>	<del>6.69</del>	<del>7.05</del>	<del>30.3/1.18</del>	<del>-65.7</del>	<del>1.254</del>	<del>JAP</del>
	<del>6:04</del>	<del>0.77/0.01</del>	<del>5.15</del>	<del>7.38</del>	<del>39.1/1.41</del>	<del>-100.1</del>	<del>1.223</del>	
	6:29 PM	1.66/0.32	7.19	6.55	30.4/0.65	-22.7	2.561	
	6:44	1.57/0.25	7.26	6.53	7.1/0.88	-30.1	2.427	
	7:03	1.52/0.20	6.84	6.91	5.8/0.70	-35.2	2.340	JAP
	1719							
11/18/97	<del>1719</del>	1.506/1.24	9.70	6.60	5.8/0.65	-41.4	2.398	SJ
	1724	1.524/1.21	9.66	6.59	6.0/0.67	-41.4	2.338	ASR
	1729	1.493/1.19	9.73	6.57	6.1/0.69	-42.0	2.290	ASR
	1734	1.467/1.16	9.75	6.57	6.1/0.69	-42.6	2.253	ASR
	1739	1.449/1.15	9.77	6.57	6.2/0.70	-43.0	2.227	ASR
	1749	1.413/1.12	9.68	6.56	5.4/0.62	-43.1	2.179	ASR
11/19/97	1941	0.778/0.60	10.35	6.51	7.1/0.79	-31.1	1.210	JP
	1946	0.796/0.61	10.24	6.50	7.3/0.82	-30.7	1.223	
	1953	0.782/0.60	10.35	6.50	7.5/0.84	-32.5	1.201	
	1959	0.773/0.60	10.31	6.49	7.1/0.84	-33.3	1.189	
11/20/97	2004	0.386/0.29	4.70	8.42	110.9/14.26	32.4	0.593	SJ
	2010	0.385/0.29	4.38	8.45	110.8/14.37	36.6	0.592	
	2015	0.385/0.29	4.15	8.47	110.7/14.43	39.3	0.591	
11/21/97	1551	0.738/0.56	4.34	6.57	34.1/4.06	-46.0	1.158	SJ
	1615	0.823/0.94	6.67	6.48	7.7/0.94	-44.1	1.264	
	1621	0.814/0.62	6.57	6.48	7.5/0.91	-44.7	1.247	
	1625	0.809/0.62	6.55	6.48	7.5/0.92	-45.2	1.241	
11/24/97	1759	0.577/0.44	6.87	7.17	85.7/10.54	-82.6	0.885	SJ
	1804	0.566/0.61	6.82	7.51	99.4/12.7	-105.1	0.861	
	1809	0.562/0.41	5.05	7.57	112.5/11.1	-106.2	0.882	
11/24/97	1751	0.776/0.60	7.45	6.51	9.6/1.16	-36.9	1.236	SJ
	1801	0.847/0.65	7.38	6.51	19.2/1.22	-38.6	1.289	
	1806	0.835/0.64	8.06	6.50	10.1/1.16	-39.5	1.280	
	1814	0.834/0.64	8.22	6.50	10.7/1.26	-40.4	1.281	
	1818	Sampling						
11/25/97	2230	0.643/0.49	8.11	6.55	21.7/2.40	-44.9	1.039	SJ

**M&E**

2235 0.722/0.56 9.09 6.50 13.1/1.49 -37.7 1.131  
 2240 0.770/0.59 9.23 6.51 11.4/1.31 -42.9 1.200  
 2247 0.792/0.61 9.20 6.51 11.4/1.30 -43.6 1.220

Groundwater Monitoring Well SS-06 Test Location NPS-D

**M&E**

# GROUNDWATER MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

MP 5 E

Test Location

Date	Time	10.5/13.4 Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/17/97	4:02 PM							
	4:08 PM	1.026/1.573	7.34	6.78	0.57	-79.4	1.593	JAP
	4:14 PM	1.020/1.585	7.53	6.79	0.55	-84.0	1.586	
	4:22 PM	1.018/1.565	6.79/3.55	6.79	0.51	-87.3	1.564	
11/18/97	1804	1.042/0.81	8.12	6.84	5.9/0.68	-61.2	1.596	AJR
	1813	1.028/0.80	8.92	6.86	4.5/0.54	-64.6	1.581	AJR
	1825	1.026/0.80	7.57	6.87	4.3/0.51	-63.5	1.579	AJR
11/19/97	2008	0.555/0.42	8.84	6.77	7.7/0.89	-50.1	0.847	JP
	2014	0.535/0.41	8.63	6.80	6.0/0.69	-52.3	0.823	
	2021	0.531/0.40	8.46	6.81	5.7/0.66	-53.5	0.818	
	2032	0.529/0.40	8.26	6.82	5.4/0.64	-54.6	0.813	SJ
11/20/97	1355	0.419/0.32	10.01	6.69	10.8/1.22	-43.0	0.650	SJ
	1400	0.439/0.32	9.92	6.71	10.6/1.19	-45.4	0.664	
	1405	0.435/0.33	9.83	6.73	10.2/1.15	-49.5	0.670	
	1416	0.424/0.36	9.76	6.73	10.5/1.20	-51.3	0.744	
11/20/97	2028	0.490/0.37	8.17	7.08	72.2/8.34	-76.8	0.765	SJ
	2031	0.514/0.39	8.68	6.97	53.3/6.03	-79.9	0.802	
	2037	0.529/0.40	8.88	6.92	34.1/3.89	-83.3	0.817	
11/21/97	1642	0.561/0.42	5.14	6.77	7.1/0.90	-66.9	0.857	SJ
	1647	0.550/0.42	5.36	6.78	6.2/0.78	-70.3	0.844	
	1652	0.547/0.41	5.44	6.79	5.9/0.75	-72.5	0.844	
	1700	0.546/0.41	5.21	6.79	5.6/0.71	-72.4	0.839	
11/24/97	1825	0.581/0.42	5.39	7.21	32.9/4.11	-31.7	0.882	SJ
	1830	0.598/0.39	5.28	7.05	35.1/4.51	-34.9	0.628	
	1836	0.409/0.39	5.22	7.15	34.6/4.59	-35.8	0.639	
11/24/97	1829	0.809/0.62	7.93	6.53	20.7/2.46	-35.6	1.247	SJ
	1835	0.808/0.62	6.91	6.54	28.0/3.47	-32.7	1.249	
	1849	0.550/0.42	6.93	6.79	8.5/1.53	-57.5	0.846	
	1854	0.548/0.42	7.10	6.80	8.3/1.01	-58.4	0.844	

1859 0.550/0.42 6.86/0.80 **M&E** 2.4/1.03 -59.4 0.846

sampled for SFL at 1902

MP 1A



Groundwater Monitoring Well MP5E Test Location SS06

M&E

FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well MP2B

Test Location 5506

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/24/97	1654	-0.08		16.2	3.0	41.1	—	313	JP
	1659			16.2	3.0	40.7	0.32	313	
	1703			16.2	3.0	39.4	0.33	318	
		Air sampling was stopped at 2130.							
11/24/97	2221			17.1	3.0	39.3	1.00	313	ABR
	2224			17.2	2.9	41.0	0.98	330	
	2227			17.3	2.7	36.4	0.97	342	
	2230			17.4	2.5	31.5	0.96	346	
11/25/97	1738			17.7	2.7	0.5	0.56	275	SJ
	1742			18.0	2.6	0.5	0.55	264	
	1745			18.1	2.6	0.4	0.54	245	
11/26/97	1140	—	—	16.4	2.4	0.6	0.47	233	FA
	1145			16.7	2.2	0.5	0.46	210	
11/28/97	1540	—	—	16.7	2.0	0.0	0.0	195	
	1550	—	—	17.1	1.8	0.0	0.33	187	
11/30/97	1740			16.3	2.0	0.2	0.16	125.7	
	1745			16.5	1.9	0.1	0.16	103.0	
12/2/97	1215			13.9	3.3	0.2	0	133	SJ
	1219			14.4	2.9	0.2	0	120.3	
	1250			15.6	2.3	0	0	47.2	
12/4/97	1149			13.4	3.3	0	0	102.7	SJ
	1152			13.6	3.3	0	0	95.6	
	1155			13.6	3.2	0	0	93.3	
12/9/97	1845			12.6	3.8	0.1	0.0	94.8	FA
	1850			12.7	3.8	0.0	0.0	65.2	
	1855			12.8	3.7	0.0	0.0	48.2	
12/13/97	1254			10.8	5.3	0	0	56.0	SJ
	1300			11.1	5.2	0	0	33.7	
	1304			11.2	5.1	0	0	29.3	

**VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING**

C-7

Vapor Monitoring Well SS06-MP2

Test Location SS06 MP2C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1855			0.0	15.4	too high	0.0	79.8	
	1856			0.0	15.2	↓	0.0	79.9	
	1857			0.0	15.2	↓	0.0	80.7	
	1858								
	1859								
	1900								
<hr/>									
11/12/97									
	1955			1.2	15.6	127.2	0.0		
	1956			1.4	15.4	128.7	0.0		
	1957			1.5	15.3	129.6	0.0		
	1958			1.5	15.3	130.3	0.0		
	1959			1.5	15.2	131.8	0.0		
	2000			1.5	15.2	132.7	0.0	205	
11/13/97	10:24		PURGING						
	10:30			3.3	12.7	129.0	—	133	FA
11/13/97	421	2.60							
	439	2.61							
	5:00	2.58							
	554	2.52							
<hr/>									
	1000 PM	2.60							
11/14/97	9:20 AM	2.58							
11/15/97	3:25	1.56			PURGING				
	3:30			14.4	5.1	15.7		400	
11/17/97	12:20 PM	1.52		15.2	3.5	16.6		997	
11/18/97	1540	1.56		17.3	03.5	18.2		882	
	1543			17.3	3.5	18.6		899	
	1548			17.3	3.5	19.7		923	
	1559			17.3	3.5	20.6		738	

**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06 MP2-C

Test Location SS06

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1830			11.7	7.9	80.1	0.00	168.4	JP
	1838			11.9	7.7	83.4	0.00	180.0	
	1843	1.24		12.0	7.7	82.3	0.00	185.5	
11/20/97	18:29	1.37							
	1851			12.1	7.7	62.9	0	244	SJ
	1854								
	1854			12.0	7.7	67.5	0	250	
	1858			12.0	7.7	69.7	0	250	
	1901			12.1	7.7	70.8	0	250	
11/21/97	1620	1.77							
	1626			21.1	0	0	0	7.3	SJ
	1630			21.1	0	0	0	5.5	
	1633			21.2	0	0	0	7.3	
	1637			21.0	0	0	0	7.3	
11/22/97	1619	1.41							
	1621			11.9	10.2	33.5	0	494	SJ
	1624			12.4	9.4	46.8	0	502	
	1628			12.8	8.9	47.7	0	515	
11/23/97	1412	1.58		16.6	6.9	30.4	0	298	SJ
	1415			18.2	0.4	0.1	0	299	
	1419			19.9	0.3	0	0	309	
11/24/97	1258	-0.23		15.1	5.0	114.6	1.3	179	SJ
	1301			14.4	5.5	138.3	0.76	177	
	1303			14.0	5.8	144.6	0.66	179	
	1306			13.8	6.0	148.3	0.66	181	
11/24/97	1708	-0.19		18.0	3.0	>>150	1.1	168	
	1712			17.9	3.2	>>150	1.1	170	SJ
	1716			17.8	3.3	>>150	1.1	170	
11/24/97	2234			18.2	2.3	134	1.5	171	ASR
	2237			18.2	2.4	>>	1.5	170	
	2245			18.1	2.4	>>	1.5	172	

**M&E**

11/25/97 1755  
4/2 1759  
1803

16.7 5.9 144.5 0.98 255 SJ  
16.7 4.9 136.0 0.88 256  
16.7 4.9 131.2 0.85 255

## WURTSMITH AFB PILOT TESTING

### Vapor Monitoring Well

SS-06

### Test Location

MP 2-C

[illegible]

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

C-8

Vapor Monitoring Well SS06-MP3

Test Location SS06-MP3A

Date	Time	Vacuum (Inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1901			16.4	2.0	8.2	—	736	
	1902			16.4	2.0	6.7	—	762	
	1903			16.4	2.0	6.2	—	753	
	1904			16.2	1.9	5.8	—	763	
	1905			16.6	1.9	6.1	0.0	745	
<hr/>									
11/12/97	2049			20.4	0.0	0.4	—		
	2050			20.4	0.0	0.4	—		
	2051			20.4	0.0	0.4	—		
	2052			20.5	0.0	0.4	—	395	
11/13/97									
<del>11/13/97</del>	10:40			PURGING					
	10:45	—		19.9	0.2	2.7	—	818	FA
11/13/97									
	422	1.02							
	440	1.01							
	504	1.01							
	<del>504</del>								
	555	0.96							
	1060	1.01							
11/14/97	1000 AM	1.00							
	920								
11/15/97	3:28 PM	0.62		PURGING					
	3:43 PM			19.4	0.0	0.0		703	
11/17/97	12:30 PM	0.59		18.8	0.0	0.1		208.0	
11/18/97	13:58	0.90		21.2	0.0	0.0		51.6	
	14:05			21.2	0.0	0.0		51.6	
11/19/97	1502			20.1	0	0		12.2	
	1505			20.1	0	0	0	13.5	

1511

1514

0.83

20.1

20.1

**M&E**

0.0

0

16.0

16.0

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06 MP3

Test Location SS06-MP3A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/20/97	1439	0.70							SJ
	1442			20.2	0.0	0.0	0	28.3	
	1445			20.2	0	0	0	26.8	
	1448			20.2	0	0	0	28.3	
11/21/97	1221	0.75							SJ
	1224			19.8	0	0	0	34.0	
	1229			19.8	0	0	0	31.3	
	1233			19.8	0	0	0	31.3	
	1235			19.7	0	0	0	33.1	
11/22/97	1249	0.81							
	1252			19.9	0.3	0	0	21.7	SJ
	1253			19.9	0.3	0	0	20.2	
	1256			19.9	0.3	0	0	17.2	
11/23/97	1701	0.98		20.1	0.3	0	0	176.2	SJ
	1707			20.1	0.3	0	0	181.3	
	1711			20.1	0.3	0	0	184.6	
11/24/97	1309	-0.29		19.1	0.1	33.4	0.72	452	SJ
	1321			19.1	0.2	42.0		481	
	1327			19.1	0.2	39.4	0.38	493	
	1330			19.1	0.2	30.2	0.35	491	
11/24/97	1723	-0.24		19.8	0.1	44.1	1.9	425	SJ
	1728			19.8	0.1	30.9	1.9	446	
	1733			19.8	0.1	28.0	1.9	449	
	1737			19.8	0.1	26.6	1.9	449	
11/24/97	22:47			19.5	0.2	103.1	1.8	314	JF
	22:50			19.5	0.2	54.6	1.9	366	
	22:53			19.5	0.2	45.4	1.9	373	
11/25/97	1812			20.8	0.3	20.4	0.74	545	SJ
	1817			20.8	0.3	19.6	0.75	528	
	1820			20.8	0.3	19.4	0.75	518	

**M&E**

Vapor Monitoring Well SS-06 Test Location 3A

M&E



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-9

Vapor Monitoring Well SS06 MP3

Test Location SS06-MP3B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1908			19.4	0.7	2.2	0.0	85.3	
	1909								
	1910			1.2	14.0	off scale	0.0	85.5	
	1911			1.1	13.8		0.0	86.1	
	1912			1.3	13.6		0.0	86.7	
<hr/>									
11/12/97									
	2043			20.2	0.0	1.3	—		
	2044			20.2	0.0	0.7	—		
	2045			20.2	0.0	0.4	—	572	
	2046								
11/13/97	10:40			PURGING					
	10:48			13.6	2.7	5.6	—	208	FA
11/13/97									
	425	1.89							
	440	1.89							
	504	1.87							
	554	1.85							
	1002	1.38							
11/14/97	1000 AM	1.86							
	920 AM								
11/15/97	530 PM	1.15		PURGING					
	535			19.3	0.0	0.0		870	
11/17/97	1245 PM	1.15		18.8	0.0	0.0		96.3	
11/18/97	1525	1.40		21.2	0.00	0.00		19.2	
	1528			21.2	0.00	0.00		20.2	
	1531			21.2	0.00	0.00		21.2	
11/19/97	1631			20.0	0.0	0.0		10.2	
	1634			20.0	0.0	0.0		9.6	

1639 0.85

20.0

**M&E**

0.0 0.0

9.6

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06 MP3

Test Location SS06-MP3B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/20/97	1627	0.94	:						
	1630		:	20.5	0	0	0	10.4	SJ
	1634			20.4	0	0	0	10.4	
	1637			20.4	0	0	0	10.4	
11/21/97	1414	0.86		20.9	0	0.4	0	39.6	SJ
	1432			21.0	0	0	0	36.8	
	1435			21.0	0	0	0	34.0	
	1438			21.0	0	0	0	22.1	
11/27/97	1414	1-12	:						
	1416			19.9	0.3	0	0	21.7	SJ
	1424			19.7	0.3	0	0	15.7	
	1429			19.7	0.3	0	0	14.2	
11/27/97	1818	0.96							SJ
	1821			20.4	0.3	0	0	199	
	1824			20.4	0.3	0	0	201	
	1827			20.4	0.2	0	0	197	
11/24/97	1333	0.50							
	1337			19.3	0.0	24.6	0.18	491	JP
	1341			19.2	0.0	26.1	0.18	493	
	1344			19.3	0.0	26.1	0.17	493	
11/24/97	1741	0.67							
	1744			19.9	0	25.2	0.9	449	SJ
	1753			19.9	0	25.7	2.0	453	
	1759			19.9	0	25.9	2.0	453	
11/24/97	2255			19.6	0.0	37.2	1.9	401	JP
	2259			19.5	0.1	40.3	1.9	376	
	2302			19.5	0.1	41.5	1.9	370	
11/25/97	1826			19.7	0.8	62.9	1.3	402	SJ
	1830			19.8	0.7	60.3	1.2	407	
	1835			19.9	0.6	56.0	1.1	407	

**M&E**

Vapor Monitoring Well SS-06 Test Location MP-3B

# M&E

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-10

Vapor Monitoring Well SS06-MP3

Test Location SS06 MP3C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1915			0.0	15.1	OFF SCALE	0.0	69.9	
↓	1916			0.0	15.1	↓	0.0	70.1	
	1917								
	1918								
	1919								
	1920								
<hr/>									
11/12/97									
	2024			20.0	.2	.9	0.0		
	2027			20.1	.1	.4	—		
	2028			20.0	.2	.4	—		
	2029			20.0	.2	.4	—	461	
	2030								
11/13/97	10:48			PURGING		56.6			
	10:59	—		6.1	7.7	55.9	—	91	FA
11/13/97									
	425	2.71							
	440	2.72							
	505	2.70							
	554	2.67							
<hr/>									
	1005 AM	2.70							
11/14/97	1000 AM	2.69							
	920								
11/15/97	2:00 PM	1.66		PURGING					
	520			19.3	0.0	0.0		68.0	
11/17/97	100 PM	1.68		19.8	0.0	0.0		67.9	
11/18/97	1604	1.80		21.1	0.00	0.7		360*	*Previous Reading was
	1607			21.1	0.20	0.4		282	
	1613			21.1	0.00	0.2		196	
	1619			21.0	0.00	0.1		145	

1628



(previous test results)

21.0 0.00 0.00

113.4

1636

21.0 0.00 0.00

88.0

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well 5506

Test Location MP3C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	17:49			20.3	0.00	0.00		156	JP
	1754			19.0	1.9	>150		158	
	1757	0.89		19.1	1.9	>150		160	
11/20/97	1938	1.00							
	1941			20.0	0.2	69.6	1.3	332	SJ
	1944			20.0	0.2	70.2	1.3	334	
	1947			20.0	0.2	70.5	1.2	338	
	1950			20.0	0.2	71.4	1.2	338	
11/21/97	1640	1.40							
	1643			21.0	0	0	0	7.3	SJ
	1648			20.9	0	0	0	6.4	
	1651			21.0	0	0	0	7.4	
	1655			20.9	0	0	0	8.2	
11/22/97	1634	1.37		20.2	0.3	19.2	1.5	905	SJ
	1637			20.2	0.3	14.1	1.5	913	
	1640			20.0	0.3	13.2	1.5	902	
11/23/97	1420	1.26							
	1432			19.8	0.3	0	0.85	634	SJ
	1435			19.9	0.3	0	0.86	640	
	1438			19.9	0.3	0	0	655	
11/24/97	1346	-0.37							
	1349			19.5	0.0	25.6	0.38	514	← Helium found at this point prior to test.
	1400			19.7	0.0	25.0	—	517	
	1405			19.7	0.0	24.3	1.5	517	
	1408			19.7	0.0	24.2	1.6	517	
11/24/97	1812	-0.72		19.9	0	20.7	2.0	478	
	1827			19.8	0	21.0	2.0	486	
	1833			19.8	0	21.9	2.0	486	
	1836			19.7	0	21.6	2.1	486	

# M&E

FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well MP3C

Test Location 5506

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/24/97	2304			19.5	0.0	30.2	2.0	421	JP
	2307			19.5	0.0	35.4	2.0	399	
	2311			19.1	0.0	37.7	1.9	397	
	2313			19.4	0.0	36.0	1.9	397	
11/25/97	1847			19.9	0.4	60.3	1.6	401	SJ
	1852			19.9	0.4	62.1		387	ASR
	1857			19.9	0.4	65.0		382	ASR
	1907			19.9	0.4	64.3	1.6	377	SJ
<del>11/24/97</del>	<del>1345</del>			<del>20.3</del>	<del>0</del>	<del>0.4</del>	<del>0</del>	<del>453</del>	<del>SJ</del>
	<del>1348</del>			<del>20.3</del>	<del>0</del>	<del>0.3</del>	<del>0</del>	<del>453</del>	
	<del>1352</del>			<del>20.3</del>	<del>0</del>	<del>0.3</del>	<del>0</del>	<del>453</del>	
11/24/97	1354			18.5	0.4	65.7	1.8	345	SJ
	1357			18.4	0.4	69.7	1.8	348	
	1400			18.4	0.4	72.4	1.7	346	
11/28/97	1750	—	—	16.0	1.2	62.5	1.2	1140*	FA
	1800			15.7	1.3	65.4	1.0	1192	
11/30/97	1850			13.6	2.2	73.9	0.87	327	
	1855			13.6	2.2	72.2	0.86	335	
12/2/97	1500			12.4	3.0	65.2	0.40	292	SJ
	1503			12.4	3.0	69.3	0.40	291	
	1507			12.4	2.9	69.1	0.40	293	
12/4/97	1325			10.3	4.0	55.8	0.13	313	SJ
	1328			9.6	4.2	72.1	0.12	298	
	1331			9.5	4.3	92.5	0.10	294	
12/9/97	1930			2.6	7.4	101.7	0.15	286	FA
	1935			2.8	7.3	97.8	0.22*	296	Reid
	1940			2.9	7.3	94.9	0.0	301	huc
12/13/97	1443			0.4	10.1	107.7	0	557	SJ
	1446			0.5	10.1	106.3	0	559	
	1449			0.6	10.0	102.1	0	567	
	1453			0.7	10.0	98.1	0	578	

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06-MP4Test Location SS06-MP4A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1919			12.8	5.4	15.8	0.0	1002	
	1920			12.8	5.4	14.8	0.0	997	
	1921			12.8	5.4	14.1	0.0	997	
	1922								
<hr/>									
11/12/97	2115			20.1	0.0	4.0	—		
	2116			20.1	0.0	4.0	—		
	2117			20.1	0.0	4.0	—	395	
	2118								
<hr/>									
11/13/97	11:02			PURGING					
	11:07			19.4	0.4	1.2	—	576	FA
11/13/97	425	0.31							
	440	0.33							
	506	0.35							
	555	0.31							
	1005 PM	0.31							
11/14/97	<del>1000 AM</del>	0.30							
	900								
11/15/97	525 AM	0.21		PURGING					
				19.3	0.0	0.0		54.4	
11/15/97	530 PM								
11/17/97	1:10 PM	0.19							
	1:15 PM			19.0	0.0	5.0		39.9	
	1:19 PM			19.0	0.0	0.0		37.0	
11/18/97	2:17	0.22		21.4	0.00	0.00		33.4	
	2:20			21.2	0.00	0.00		29.3	
	2:27			21.2	0.00	0.00		24.2	

11/19/97

M&amp;E

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS-06 MP4

Test Location SS 06 MP4A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1518			20.1	0	0		15.4	
	1522			20.1	0	0		13.5	
	1525			20.1	0	0		12.2	
	1528			20.1	0	0		10.9	
	1531	0.15		20.1	0	0		10.9	
20									
11/22/97	1508	0.21		20					
	1513			20.3	0	0	0	25.3	
	1519			20.3	0	0	0	22.3	
	1523			20.3	0	0	0	20.8	
11/21/97	1246	0.11							
	1242			19.5	0	0	0	23.9	SJ
	1245			19.4	0	0	0	21.1	
	1250			19.4	0	0	0	14.7	
	1253			19.4	0	0	0	13.8	
11/22/97	1304	0.22							SJ
	1306			20.1	0.2	0	0	30.7	
	1309			20.1	0.2	0	0	18.7	
	1312			20.2	0.2	0	0	20.1	
11/23/97	1715	0.45							SJ
	1716			19.9	0.3	0	0	191.7	
	1719			19.9	0.3	0	0	195.2	
	1722			19.9	0.3	0	0	194.1	
11/24/97	1413	-0.07		19.1	0.5	45.0	0.82	342	JP
	1417			19.1	0.5	50.5	0.82	336	
	1421			18.9	0.5	49.6	0.81	334	
	1428			18.9	0.5	52.5	0.85	331	
11/24/97	1841	<del>-0.32</del>							
	1853	-0.07		19.3	0.8	52.7	—	331	JP
	1900			19.3	0.8	54.4	1.5	330	

**M&E**



FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well MP4A

Test Location 5506

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/24/97	2315			18.9	0.5	50.0	1.0	324	JP
	2318			18.9	0.5	54.9	0.98	310	
	2321			18.9	0.5	57.2	0.97	309	
11/25/97	2129			19.7	0.4	6.5	0.48	650	SJ
	2134			19.7	0.4	5.5	0.48	650	
	2138			19.8	0.3	4.8	0.52	650	
11/26/97	1413			19.7	0	1.8	0.37	343	SJ
	1416			19.8	0	1.4	0.36	318	
	1420			19.8	0	1.0	0.33	301	
11/28/97	1815			19.6	0.0	1.5	0.29	40	
	1820			19.6	0.0	0.4	0.27	45	
11/30/97	1905			19.6	0.1	0.8	0.20	30	
	1910			19.8	0.0	0.8	0.20	<del>30</del> 30	
12/2/97	1511			18.9	0.4	4.4	0.23	442	SJ
	1515			18.9	0.3	1.0	0.17	273	
	1518			19.0	0.3	0.7	0.19	230	
	1520			19.1	0.3	0.6	0.20	197	
12/4/97	1336			17.9	0.7	1.4	0.26	275	SJ
	1339			18.1	0.7	0.6	0.25	211	
	1342			18.2	0.6	0.5	0.10	187	
	1345			18.2	0.5	0.4	0.10	173	
12/9/97	1720			17.9	0.7	0.0	0.09	32.0	ASR
	1728			18.1	0.7	0.0	0.01	21.8	
	1732			18.2	0.6	0.0	0.01	20.0	
	1735			18.2	0.6	0.0	0.01	19.3	
12/13/97	1202			17.6	1.0	0	0.12	33.2	SJ
	1210			17.5	1.0	0	0.12	32.2	
	1213			17.5	1.0	0	0.11	30.7	
	1217			17.5	1.0	0	0.11	29.3	

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

C-12

Vapor Monitoring Well SS06-MP4

Test Location SS06-MP4B

Date	Time	Vacuum (Inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1923			2.9	11.9	38.9	0.0	594	
	1924			3.0	11.7	40.2	0.0	592	
	1925			3.3	11.5	41.2	0.0	593	
	1926			3.5	11.3	41.4	0.0	595	
<hr/>									
11/12/97									
	2109			20.0	0.0	0.8	—		
	2110			20.0	0.0	0.7	—		
	2111			20.0	0.0	0.7	—	619	
	2112								
<hr/>									
11/13/97	11:02			PURGING					
	11:10	—		12.6	4.6	0.9	—	415	FA
11/13/97	4 25	0.80							
	440	0.81							
	506	0.84							
	555	0.77							
	1005 AM	0.76							
11/14/97	1000 AM	0.78							
	920								
11/15/97	540 PM	0.50		PURGING					
	545			19.3	0.0	0.0		500	
11/17/97	1:28 PM	0.50		19.0	2.0	0.0		36.3	
	1:27 PM	0.46		18.6	0.4	0.0		33.0	
	1:30 PM			19.0	0.0	0.0		26.2	
11/18/97	1515	0.49		21.2	0.00	0.00		14.1	
	1519			21.2	0.00	0.00		13.1	
11/19/97	1613			20.1	0.0	0.0		11.5	
	1624			20.1	0.0	0.0		8.3	
	1627	0.26	20.1					8.3	



# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well \_\_\_\_\_

Test Location SS06-MP4B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/20/97	1647	0.37							
	1649			20.4	0	0	0	8.9	SJ
	1655			20.4	0	0	0	9.7	
	1658			20.4	0	0	0	9.7	
11/21/97	1443	0.43							
	1446			21.1	0	0	0	23.9	SJ
	1450			21.0	0	0	0	15.6	
	1459			21.0	0	0	0	9.2	
	1503			21.0	0	0	0	8.2	
11/22/97	1433	0.46							
	1436			19.9	0.2	0	0	12.7	SJ
	1441			19.9	0.2	0	0	14.2	
	1443			19.9	0.2	0	0	14.8	
11/23/97	1829	0.41							
	1831			20.5	0.3	0	0	17.9	SJ
	1834			20.5	0.3	0	0	18.3	
	1837			20.5	0.2	0	0	18.0	
11/24/97	1432	-0.16							
	1434			19.3	0.7	94.5	1.1	288	JP
	1437			19.3	0.7	101.9	1.2	288	
	1440			19.3	0.7	103.7	1.2	286	
	1443			19.3	0.7	104.2	1.2	287	
11/24/97	1908	-0.13							
	1914			19.5	0.5	79.2	1.8	286	JP
	1914			19.5	0.5	87.6	1.8	281	
	1920			19.5	0.5	90.6	1.9	279	
11/24/97	2323								
	2326			19.1	0.8	64.2	1.8	287	JP
	2326			19.0	0.8	75.9	1.8	282	
	2329			19.0	0.8	84.2	1.7	282	
11/25/97	2143								
	2143			17.5	2.2	22.3	0.89	650	SJ
11/25/97	2146								
	2146			17.7	2.2	16.3	0.89	650	
	2149			17.6	2.1	13.6	0.89	650	

# M&E

11/26/97 1422  
1425  
1428

17.0 1.8 2.7 0.54 349  
17.0 1.7 2.4 0.53 338  
17.1 1.6 2.4 0.59 335

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06

Test Location MP 4B

[illegible]

M&amp;E

**VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING**

C-13

Vapor Monitoring Well SS06-MP4

Test Location SS06-MP4C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1928			0.0	14.6	off scale	0.0	66.3	
	1929			0.0	14.6		0.0	66.9	
	1930			0.0	14.6		0.0	66.7	
	1931								
<hr/>									
11/12/97									
	2102			16.6	3.1	2.1	—		
	2103			16.6	3.2	1.4	—		
	2104			16.6	3.2	1.2	—		
	2105			16.6	3.2	1.0	—	592	
<hr/>									
11/13/97	11:10			PURGING					
	11:15	—		4.5	10.2	68.0	—	77	FA
<hr/>									
11/13/97	4:25	1.54							
	4:40	1.56							
	506	1.58							
	556	1.51							
<hr/>									
	10 06PM	1.52							
11/14/97	1000 AM	1.56							
	920								
11/15/97	535 PM	0.96			PURGING				
	540			19.2	0.1	0.0		60.2	
11/17/97	1:20 PM	0.96							
	1:24 PM			18.6	0.4	0.0		83.0	
	1:28 PM			18.6	0.4	0.0		78.7	
<hr/>									
11/18/97	1649	0.90		20.9	0.4	0.1		103.2	
	1653			20.9	0.4	0.1		100.2	
	1658			20.9	0.4	0.1		100.2	



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well 5506

Test Location HP4C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1800			15.8	6.7	>150	2.9	82.9	JP
	1804			15.6	6.9	>150	2.5	77.8	
	1807	0.51		15.6	6.9	>150	2.5	75.2	
11/20/97	2003	0.62							
	2006			18.3	1.9	30.1	0.47	207.4	SJ
	2009			18.3	1.9	30.1	0.49	198.5	
	2012			18.2	2.0	30.5	0.51	189.5	
11/21/97	1659	0.97							SJ
	1705			21.0	0	0		3.6	
	1708			21.0	0	0		2.7	
	1711			21.0	0	0		3.6	
11/22/97	1700	0.80							
	1703			18.2	2.2	15.2	0.27	318	SJ
	1706			18.2	2.2	14.0	0.26	319	
	1709			18.2	2.2	13.1	0.23	318	
11/23/97	1446	0.61							
	1453			20.2	0.2	0	0	198	SJ
	1459			20.4	0.3	0	0	185	
	1502			20.5	0.3	0	0	171	
	1505			20.6	0.2	0	0	574	
	1506			20.6	0.2	0	0.07	296	
11/24/97	1446	-0.41							
	1451			19.4	0.5	102.7	1.4	294	JP
	1455			19.4	0.5	106.5	1.5	293	
	1458			19.4	0.5	108.5	1.5	294	
	1501			19.3	0.5	110.7	1.5	293	
11/24/97	1923	-0.39		19.5	0.5	89.4	2.0	286	JP
	1927			19.5	0.5	89.2	2.0	289	
	1930			19.5	0.5	88.9	2.0	289	
11/24/97	2333						2.0	291	JP
	2336						1.9	237	

2338

**M&E**

1.9 230

11/25/97 2154  
2157  
2200

18.3 1.9 132.0 1.5 394 SJ  
18.3 1.9 137.1 1.5 390  
18.3 1.8 136.3 1.4 391

Vapor Monitoring Well MP4e Test Location SS06



# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

SS06-MP5

Vapor Monitoring Well

Test Location SS06-MP5A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1932			12.2	5.3	28.0	0.0	769	
	1933			12.3	5.3	22.1	0.0	775	
	1934			12.3	5.2	20.2	0.0	785	
	1935			12.4	5.2	18.7	0.0	786	
	1936			12.5	5.1	17.6	0.0	792	
<hr/>									
11/12/97									
	2136			20.0	0.0	0.5	—		
	2137			20.0	0.0	0.4	—		
	2138			20.0	0.0	0.3	—		
	2139			20.0	0.0	0.3	—	3346	
11/13/97	11:20			PURGING					
	11:25	—		16.5	2.2	1.6	—	585	FA
11/13/97									
	4:30	0.06							
	4:41	0.08							
	5:07	0.10							
	5:56	0.09							
	10:08	0.04							
11/14/97	<del>10:05 AM</del>								
	8:20	0.10							
SS0	11/15/97	0.05							
SS7				19.5	0.0	0.0		413	
11/17/97	7:00 PM	0.05		19.0	0.0	0.0		21.2	
11/18/97	1432	0.14		21.2	0.00	0.00		22.2	
	1435			21.2	0.00	0.00		21.2	
	1445	0.14		21.2	0.00	0.00		15.1	
11/19/97	1538			20.1	0.0	0.0		9.6	
	1541	0.03		20.1	0.0	0.0		9.6	

M&amp;E



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06 MP5

Test Location SS06-MP5A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/20/97	1527	0.03							
	1529			20.3	0	0	0	18.6	SJ
	1535			20.3	0	0	0	16.8	
	1539			20.3	0	0	0	18.6	
	1545			20.3	0	0	0	15.6	
11/21/97	1255	0.02							
	1256			19.4	0	0	0	14.7	SJ
	1302			19.4	0	0	0	13.8	
	1305			19.4	0	0	0	15.6	
	1310			19.6	0	0	0	18.4	
11/22/97	1320	0.04							
	1322			20.1	0.2	0	0	20.2	SJ
	1325			20.1	0.2	0	0	15.7	
	1329			20.1	0.2	0	0	14.3	
11/23/97	1723	0.25		19.4					SJ
	1725			19.9	0.3	0	0	184.6	
	1730			19.8	0.3	0	0	189.2	
	1733			19.8	0.3	0	0	192.7	
11/24/97	1507	-0.02		17.0	1.7	59.0	0.47	292	JP
	1510			17.0	1.8	49.0	0.49	286	
	1513			17.1	1.8	44.5	0.50	276	
	1516			17.1	1.8	43.0	0.52	272	
11/24/97	1933	-0.02		17.4	2.3	100.2	0.83	231	JP
	1941			17.4	2.3	75.0	0.84	245	
	1943			17.4	2.3	70.1	0.85	246	
11/24/97	2340						0.27	224	JP
	2343						0.25	228	
	2345						0.25	229	
11/25/97	1008			19.1	1.2	7.8	0.04	72.6	SJ
	1011			19.2	1.0	3.6	0.06	661	
	1016			19.4	0.9	2.4	0.04	613	

**M&E**

11/26/97	1453	20.1	0.1	3.3	0.05	383	SJ
	1456	20.2	0.1	1.5	0.07	325	
	1459	20.2	0.1	1.0	0.09	289	

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS06

Test Location MP 5-A

[illegible]

M&amp;E

**VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING**

C-15

Vapor Monitoring Well SS06-MP5

Test Location SS06-MP5B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1740			0.3	12.8	139.2	0.0	119.8	
	1741			0.3	12.7	143.6	0.0	120.7	
	1742			0.5	12.6	145.4	0.0	121.9	
<hr/>									
11/12/97	2129			19.5	0.4	2.1	—		
	2130			19.5	0.4	0.9	—		
	2131			19.5	0.4	0.6	—		
	2132			19.5	0.4	0.6	—		
	2133			19.5	0.4	0.5	—	442	
11/13/97	11:20			PURGING					
	11:28	—		10.2	3.8	8.8	—	304	FA
11/13/97	430								
		0.27							
	441	0.25							
	508	0.31							
	556	0.28							
<hr/>									
	1010 PM	0.29							
11/14/97	1005 PM	0.30							
	920								
11/15/97	620 PM	0.17				PURGING			
	615			19.5	0.0	0.0		35.0	
11/17/97	210 PM	0.18		18.9	0.0	0.0		12.5	
11/18/97	1501	0.19		21.2	0.00	0.00		14.1	
	1504			21.2	0.00	0.00		13.1	
	1507			21.2	0.00	0.00		13.1	
11/19/97	1600			19.9	0.0	0.0		9.0	
	1605			20.0	0.0	0.0	0	9.6	
	1608	0.07		20.0	0.0	0.0		9.6	

**M&E**

**VAPOR MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Vapor Monitoring Well \_\_\_\_\_

Test Location SS06 MP 5B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/20/97	1704	0.11							
	1711			20.5	0	0	0	10.4	SJ
	1719			20.5	0	0	0	10.4	
11/21/97	1507	0.15							
	1527			20.8	0	0	0	16.5	SJ
	1533			20.8	0	0	0	11.0	
	1537			20.8	0	0	0	10.1	
11/22/97	1444	0.12							
	1541			20.9	0.1	0	0	3.7	SJ
	1544			20.9	0.1	0	0	3.7	
	1547			20.9	0.1	0	0	2.2	
11/23/97	1840	0.11		<del>20</del>					SJ
	1842			20.6	0.3	0	0	152	
	1845			20.7	0.3	0	0	152	
	1849			20.7	0.3	0	0	154	
11/24/97	1520	-0.08		16.0	3.4	61.5	0.69	210	JP
	1526			16.0	3.4	63.4	0.68	210	
	1529			16.0	3.5	64.5	0.68	209	
	1532			16.1	3.5	63.9	0.67	208	
11/24/97	1945	-0.08		17.8	3.3	79.0	—	213	JP
	1953			17.8	3.2	93.0	1.1	202	
	1955			17.8	3.2	92.7	1.1	200	
11/24/97	2346						1.0	171	JP
	2350						1.0	170	
11/25/97	2227			15.7	4.7	17.4	0.50	477	SJ
	2232			15.8	4.3	13.9	0.41	479	
	2236			16.1	4.1	12.8	0.38	477	
11/26/97	1506			17.9	1.9	0.8	0.26	241	SJ
	1510			18.3	1.6	0.6	0.24	215	

**M&E**

1513

18.5 1.5

0.6 0.24 204

Vapor Monitoring Well SS-06 Test Location MPS-B

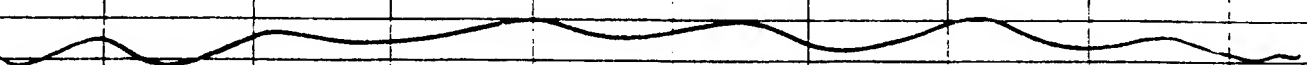


VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

C-16

Vapor Monitoring Well SS06-MP5

Test Location SS06-MP5C

Date	Time	Vacuum (Inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/11/97	1944			0.1	13.4	OFF scale	0.0	77.1	
	1945			0.0	13.3	OFF scale	0.0	77.1	
	1946								
	1947								
									
11/12/97	2123			19.9	0.9	5.4	—		
	2124			19.1	0.9	2.7	—		
	2125			19.1	0.9	1.8	—		
	2126			19.1	0.9	1.3	—	631	631
11/13/97	11:28			DURING					
	11:33	—		4.7	9.5	114.6	—	108	FA
11/13/97	4:30								
		0.67							
	442	0.65							
	508	0.69							
	556	0.67							
	1010 PM	0.69							
11/14/97	4005 AM	0.64							
	422 AM	0.43			DURING				
11/15/97	6:10 PM								
	6:20								
11/17/97	2:40 PM	0.45		15.8	0.0	0.0		73.7	
11/18/97	1705	0.43		21.1	0.00	0.00		92.1	
	1716			21.0	0.1	0.1		100.2	
	1724			21.0	0.1	0.1		99.2	
	1727			21.0	0.1	0.1		103.2	
	1736			21.1	0.1	0.1		104.0	

N&E

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well 5506

Test Location MP5C

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/19/97	1812			18.0	1.9	14.8	0.94	83.5	JP
	1817			17.8	2.0	15.9	0.97	79.7	
	1821	0.22		17.7	2.2	17.3	0.98	77.1	
11/20/97	2026	0.29							
	2030			19.8	0.4	1.8	1.35	187	SJ
	2033			19.6	0.5	1.8	0.07	179	
	2035			19.6	0.6	1.8	0.08	176	
	2039			19.4	0.7	2.1	0.08	174	
11/21/97	1713	0.59							SJ
	1716			21.0	0	0	0	3.6	
	1719			21.0	0	0	0	2.7	
	1724			21.1	0	0	0	3.4	
11/22/97	1712	0.51							
	1713			19.5	0.5	0.8	0	283	SJ
	1716			19.3	0.7	1.4	0	265	
	1719			19.3	0.8	2.2	0	262	
11/23/97	1507	0.30							
	1510			20.7	0.2	0	0	462	SJ
	1514			20.7	0.3	0	0	487	
	1517			20.6	0.3	0	0	476	
	1522			20.5	0.2	0	0	449	
11/24/97	1535	-0.23		18.2	2.3	>>>150	1.2	130	JP
	1539			18.2	2.4	>>150	1.2	131	
	1543			18.2	2.4	>>150	1.2	131	
11/24/97	1958	-0.23		18.8	1.5	>>150	1.6	131	JP
	2007			18.8	1.6	>>150	—	130	
	2013			18.8	1.6	>>150	1.6	129	
11/24/97	2353						1.6	100.0	JP
	2356						1.6	95	
	23						1.5		

## M&E

11/25/97 2243  
2252  
2255

16.4 5.0  
16.4 4.9  
16.4 4.9

>>150 0.93 253 SJ  
>>150 0.78 252  
146.5 0.91 243

Test Location 5506

[illegible]

M&amp;E



FIGURE 6-9  
DATA SHEET 2 - VAPOR MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING *Summa Sampling*

Vapor Monitoring Well MP6

Test Location 5506

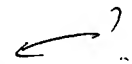
Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	%CO2	%CH4	% Helium	PID (ppm)	Operator
11/24/97	2022	-0.53		19.7	0.0	46.0	2.0	407	JP
	2025			19.7	0.0	48.3	2.0	406	
	2028			19.7	0.0	48.7	2.1	409	
	2030	start	Summa	Canister					
	2046			19.6	0.0	44.2	—	416	
	2053			19.6	0.0	48.2	2.0	416	
	2110			19.6	0.00	47.3	2.0	425	ASR
	2120			19.6	0.00	47.6	2.0	425	
	2130			19.6	0.00	47.5	2.0	426	
	2130	End	Summa	Canister	NS 5506 SV 002			Vacuum = -10" Hg	
11/25/97	2302			19.2	0.5	63.5	1.4	506	SJ
	2304			19.2	0.5	62.7	1.4	510	
	2307			19.2	0.5	62.5	1.4	499	
<del>11/26/97</del>	<del>1550</del>								<del>FA</del>
11/26/97	1612	—		18.4	0.4	48.4	1.0	412	FA
	1620			18.4	0.4	48.0	1.0	450	
	<del>16</del>								
11/28/97	1945			17.3	0.8	16.1	0.56	350	FA
	1955			17.2	0.8	14.6	0.59	480	
11/30/97	2030			16.3	1.3	9.1	0.46	511	
	2035			16.3	1.3	9.2	0.48	496	
12/2/97	1636			15.4	1.8	10.4	0.72	412	SJ
	1639			15.4	1.8	9.7	0.75	411	
	1642			15.5	1.8	8.8	0.23	410	
	1645			15.2	1.9	9.8	0.24	411	
12/9/97	2005			11.8	3.3	13.3	0.0	507	FA
	2010			11.6	3.4	11.9	0.0	486	
	2015			11.2	3.5	11.5	0.0	475	
12/13/97	1605			11.7	3.8	13.7	0	1090	SJ
	1610			11.3	4.0	9.3	0	941	
	1615			10.6	4.4	9.6	0	892	
	1624			10.2	4.6	10.4	0	905	
	1629			10.8	4.3	9.0	0	886	

**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well

SS DSB

Test Location

MP 1-B 

Date	Time	TDS / SAL Water Level (feet bTOC)	C Temp. (°F)	pH	% DO / DO <sub>2</sub> DO (mg/L)	ORP	SPC (MS) Purge Rate (gpm)	Operator
11/29/97	1600	0.364/0.27	10.61	7.16	11.5/1.28	81.0	0.560	FA
	1605	0.364/0.27	10.62	7.21	11.6/1.29	79.4	0.560	
12/1/97	1341	0.285/0.21	8.50	7.14	4.0/0.47	-113.6	0.438	SJ
	1354	0.280/0.21	9.07	7.17	4.1/0.48	-121.3	0.432	
	1405	0.281/0.21	8.61	7.19	4.2/0.49	-123.1	0.432	
12/1/97	1417	0.342/0.26	9.81	7.29	4.3/0.49	-105.3	0.528	SJ
	1422	0.345/0.26	9.38	7.29	4.3/0.49	-94.0	0.529	
	1428	0.345/0.26	9.07	7.29	4.2/0.49	-85.2	0.533	
12/3/97	1027	0.361/0.27	9.93	7.04	7.6/0.86	108.2	0.555	SJ
	1034	0.364/0.27	10.04	7.14	5.4/0.60	105.7	0.558	
	1040	0.364/0.27	10.04	7.20	5.2/0.58	104.2	0.561	
12/4/97	1636	0.389/0.29	9.76	7.51	7.7/0.87	49.4	0.595	SJ
	1641	0.377/0.28	9.67	7.43	6.1/0.69	50.6	0.579	
	1646	0.381/0.29	9.65	7.39	5.4/0.61	50.1	0.587	
	1657	0.393/0.30	9.80	7.34	4.5/0.57	47.3	0.606	
12/5/97	1020	0.356/0.27	8.25	7.24	14.6/1.71	109.1	0.546	SJ
	1029	0.353/0.26	8.18	7.25	14.8/1.74	106.2	0.542	
	1035	0.354/0.26	8.35	7.26	14.5/1.70	105.1	0.542	
	1041	0.354/0.27	8.42	7.28	14.9/1.74	104.1	0.544	
12/6/97	1028	0.335/0.25	5.83	7.04	13.6/1.75	63.5	0.515	FA
	1032	0.330/0.25	6.97	7.07	11.7/1.41	55.0	0.508	
	1036	0.331/0.25	7.76	7.12	11.5/1.38	46.2	0.511	
	1043	0.336/0.25	8.00	7.21	15.7/1.86	39.2	0.517	
12/7/97	1026	0.311/0.23	6.52	6.92	12.0/1.48	112.7	0.480	FA
	1030	0.310/0.23	7.21	7.06	13.8/1.67	107.9	0.478	
	1035	0.310/0.23	7.44	7.12	14.9/1.78	106.2	0.477	
	1040	0.312/0.23	7.29	7.18	16.7/2.02	104.5	0.484	

**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS 08 B Test Location MP 1-C

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1135	0.286/0.21	8.41	6.53	17.5/2.05	157.3	0.441	FA
	1140	0.297/0.22	8.19	6.96	19.5/2.29	143.3	0.457	
	1145	0.300/0.22	8.09	7.02	18.4/2.16	141.8	0.462	
	1150	0.300/0.22	8.17	7.10	21.0/2.49	138.0	0.461	
	1155	0.296/0.22	8.33	7.16	21.6/2.54	136.0	0.457	
<i>MP</i>								
12/9/97	1230	0.319/0.24	8.38	6.52	36.9/4.23	153.1	0.493	FA
	1235	0.321/0.24	8.86	6.87	22.0/2.55	143.9	0.493	
	1240	0.320/0.24	8.33	7.00	24.0/2.82	140.2	0.492	
	1245	0.310/0.23	8.69	7.14	27.9/3.24	134.9	0.476	
	1250	0.305/0.23	8.70	7.21	30.2/3.52	132.6	0.467	
12/10/97	1055	0.300/0.22	6.52	6.83	42.8/5.22	128.5	0.462	FA
	1100	0.306/0.23	6.74	6.97	38.4/4.68	123.3	0.473	
	1105	0.313/0.23	6.80	7.37	38.5/4.90	113.0	0.483	
	1110	0.311/0.23	7.13	7.38	38.7/4.69	112.7	0.481	
12/11/97	1858	0.299/0.22	9.16	7.38	48.1/5.52	-76.9	0.456	SJ
	1803	0.297/0.22	9.32	7.39	47.7/5.47	-71.1	0.459	
	1808	0.304/0.23	8.38	7.44	46.6/5.46	-57.4	0.466	
	1810	Sampling						
	1913	0.303/0.23	8.45	7.45	46.1/5.37	-46.6	0.461	
12/12/97	1425	0.270/0.20	8.10	7.37	63.2/7.48	-54.7	0.412	SJ
	1428	0.266/0.20	8.22	7.40	65.6/7.72	-48.9	0.408	
	1430	0.264/0.20	8.26	7.43	66.1/7.76	-45.3	0.407	
	1435	0.265/0.20	8.37	7.46	65.2/7.64	-36.4	0.407	
12/14/97	1603	0.321/0.24	8.77	7.35	115.7/13.48	-47.4	0.495	SJ
	1609	0.324/0.24	8.78	7.43	117.7/13.66	-33.7	0.500	
	1613	0.323/0.24	9.04	7.46	115.9/13.36	-25.8	0.496	
	1615	Sampling						

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS 088

Test Location MP 1-D

Date	Time	TDS/SAL Water Level (feet/bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	SpCWS Purge Rate (gpm)	Operator
11/27/97	1355	0.336/0.25	7.18	7.18	15.5/1.76	83.9	0.516	FA
	1405	0.336/0.25	9.64	7.15	15.0/1.71	75.9	0.517	
<del>11/28/97</del>	<del>1600</del>	<del>0.364/0.27</del>	<del>15.61</del>	<del>7.16</del>	<del>11.5/1.28</del>	<del>81.0</del>	<del>0.560</del>	<del>FA</del>
	<del>1605</del>	<del>0.364/0.27</del>	<del>10.62</del>	<del>7.21</del>	<del>11.6/1.29</del>	<del>79.4</del>	<del>0.560</del>	
11/29/97	1625	0.309/0.23	9.82	7.08	9.5/1.08	-76.7	0.475	
11/29/97	1610	0.346/0.26	10.23	7.10	11.1/1.25	65.0	0.532	
	1615	0.347/0.26	10.20	7.12	10.9/1.23	80.2	0.534	
12/1/97	1433	0.333/0.25	9.37	7.18	6.1/0.68	-69.8	0.506	SJ
	1438	0.332/0.25	9.45	7.14	4.4/0.50	-64.4	0.510	
	1443	0.332/0.25	8.97	7.12	4.3/0.50	-60.6	0.511	
12/3/97	1054	0.340/0.25	9.46	7.08	5.0/0.57	88.0	0.523	JP
	1059	0.340/0.25	9.49	7.09	4.9/0.55	61.4	0.524	
	1104	0.340/0.25	9.55	7.09	4.7/0.53	37.0	0.524	
	1109	0.340/0.25	9.59	7.10	4.5/0.52	16.4	0.523	
	1114	0.340/0.25	9.54	7.11	4.6/0.53	4.9	0.524	
	1119	0.340/0.25	9.69	7.11	4.5/0.51	-2.3	0.524	
	1124	0.341/0.25	9.44	7.12	4.5/0.51	-8.2	0.524	
	1132	0.340/0.25	9.58	7.12	4.3/0.49	-13.3	0.522	SJ
12/4/97	1713	0.353/0.26	7.02	7.26	15.0/1.81	49.3	0.543	SJ
	1718	0.354/0.26	6.47	7.24	12.6/1.54	48.1	0.545	
	1724	0.353/0.26	6.15	7.22	9.9/1.23	46.0	0.543	
	1735	0.355/0.26	5.38	7.23	12.6/1.52	42.7	0.550	
12/5/97	1049	0.354/0.26	8.69	7.21	12.6/1.43	99.6	0.544	SJ
	1056	0.355/0.27	9.17	7.11	9.0/1.03	90.0	0.545	
	1101	0.355/0.27	9.01	7.11	9.4/1.08	71.7	0.547	
12/6/97	1004	0.331/0.25	7.77	6.85	8.1/0.96	93.1	0.510	FA
	1010	0.334/0.25	7.85	6.95	8.1/0.96	83.3	0.514	
	1018	0.334/0.25	7.78	6.97	8.2/0.98	81.2	0.515	
	1022	0.334/0.25	7.60	7.00	8.6/1.02	72.9	0.513	

**M&E**

**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS08B Test Location 1-D

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/7/97	1050	0.300/0.22	7.22	7.17	10.2/1.21	106.9	0.462	FA
	1055	0.298/0.22	7.25	7.13	6.8/0.82	95.4	0.458	
	1100	0.298/0.22	7.10	7.13	6.7/0.81	81.1	0.458	
	1105	0.295/0.22	7.27	7.12	6.4/0.76	55.1	0.452	
	1110	0.294/0.22	7.30	7.13	6.3/0.76	43.5	0.451	
12/8/97	1205	0.287/0.21	8.38	7.19	22.5/2.65	136.6	0.441	FA
	1210	0.286/0.21	8.54	7.20	31.0/3.63	135.8	0.442	
	1215	0.285/0.21	8.83	7.19	24.4/2.80	136.1	0.440	
	1220	0.293/0.22	8.35	7.20	17.8/2.00	135.8	0.451	
	1225	0.293/0.22	8.47	7.21	31.1/3.63	134.0	0.451	
12/9/97	1255	0.279/0.21	7.48	7.29	31.1/3.66	131.9	0.422	FA
	1300	0.270/0.20	8.31	7.29	25.4/2.98	131.0	0.411	
	1305	0.261/0.19	8.51	7.31	27.0/3.14	130.0	0.402	
	1310	0.262/0.19	8.53	7.31	23.8/2.80	129.5	0.402	
12/10/97	1240	0.259/0.19	7.10	7.39	18.7/2.27	110.6	0.400	FA
	1245	0.265/0.20	7.18	7.40	19.5/2.36	109.8	0.412	
	1250	0.277/0.21	6.96	7.41	19.8/2.40	109.0	0.427	
	1255	0.277/0.21	7.01	7.41	19.0/2.30	108.7	0.426	
12/11/97	1920	0.275/0.20	8.60	7.42	32.2/3.76	-36.2	0.431	SJ
	1923	0.281/0.21	9.72	7.38	25.4/2.72	-32.9	0.419	
	1928	0.276/0.21	11.91	7.36	28.5/3.06	-27.2	0.422	
	1930	Sampling						
	1938	0.265/0.21	8.54	7.34	31.5/3.64	-19.6	0.409	
12/12/97	1442	0.268/0.20	7.89	7.44	69.1/8.23	-21.4	0.408	SJ
	1445	0.260/0.19	8.22	7.41	70.2/8.25	-17.5	0.398	
	1448	0.255/0.19	8.53	7.40	70.8/8.26	-12.0	0.392	
	1452	0.255/0.19	8.32	7.39	70.1/8.23	-6.8	0.392	
	1455	0.254/0.19	8.24	7.38	69.4/8.17	-3.5	0.390	
12/14/97	1625	0.312/0.23	8.96	7.39	106.3/12.29	-1.7	0.483	SJ
	1630	0.317/0.24	8.87	7.36	105.2/12.17	6.8	0.490	
	1635	0.321/0.24	8.82	7.35	103.4/11.97	12.8	0.493	
	1640	Sampling						

**M&E**

# GROUNDWATER MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS-08B

Test Location MP 1-E

Date	Time	105/ SAL Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	SPMS Purge Rate (gpm)	Operator
11/27/97	1420	0.314/0.23	9.16	7.15	13.5/1.55	-81.7	0.480	FA
	1426	0.311/0.23	9.10	7.19	12.7/1.46	-83.2	0.478	
<del>11/28/97</del>	<del>1610</del>	<del>0.347/0.26</del>	<del>10.20</del>	<del>7.12</del>	<del>10.9/1.23</del>	<del>80.2</del>	<del>0.534</del>	
	<del>1615</del>	<del>0.346/0.26</del>	<del>10.23</del>	<del>7.10</del>	<del>11.1/1.25</del>	<del>65.0</del>	<del>0.532</del>	
11/29/97	1625	0.307/0.23	9.80	7.12	9.3/1.05	-86.7	0.472	
	1630	0.307/0.23	9.75	7.13	9.3/1.06	-91.0	0.472	
12/1/97	1341	0.285/0.21	8.50	7.14	4.0/0.47	-113.6	0.438	SJ
	1354	0.289/0.21	9.07	7.17	4.1/0.48	-121.3	0.432	
	1403	0.281/0.21	8.61	7.19	4.2/0.49	-123.1	0.432	
12/3/97	1137	0.286/0.21	9.21	7.14	9.5/1.03	-40.5	0.435	SJ
	1143	0.282/0.21	9.29	7.14	9.5/1.04	-66.9	0.435	
	1148	0.284/0.21	9.32	7.16	3.9/0.45	-76.6	0.437	
	1155	Sampling						
	1158	0.284/0.21	9.26	7.20	3.7/0.43	-86.7	0.436	
12/4/97	1746	0.290/0.22	9.27	6.75	5.7/0.65	-33.6	0.446	SJ
	1751	0.290/0.22	9.30	7.05	5.3/0.61	-54.0	0.446	
	1756	0.289/0.21	9.23	6.61	5.6/0.61	-43.8	0.444	
12/5/97	1110	0.285/0.21	8.09	7.06	11.4/1.34	-19.2	0.439	SJ
	1115	0.287/0.21	7.66	7.06	10.1/1.21	-43.7	0.441	
	1120	0.287/0.21	7.56	7.06	9.6/1.15	-57.7	0.443	
12/6/97	1046	0.336/0.26	6.52	7.25	20.4/2.55	39.6	0.516	FA
	1050	0.291/0.21	5.47	7.11	16.2/2.05	9.7	0.448	
	1055	0.286/0.21	7.39	7.04	9.6/1.14	-28.8	0.439	
	1100	0.285/0.21	7.58	7.03	8.0/0.95	-39.1	0.438	
	1108	0.279/0.21	7.57	7.06	7.3/0.87	-71.6	0.430	FA
12/7/97	1115	0.289/0.22	7.50	7.01	6.0/0.71	-28.5	0.446	FA
	1120	0.295/0.22	7.13	7.01	6.3/0.77	-33.9	0.456	
	1125	0.292/0.22	7.23	7.03	5.9/0.71	-50.0	0.449	
	1130	0.295/0.22	7.08	7.04	6.1/0.74	-52.9	0.452	
	1135							

Some  
→ air  
collected

**M&E**

**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS08 B Test Location MP 1-E

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1230	0.298/0.21	8.05	7.06	17.0/2.00	128.6	0.442	FA
	1235	0.299/0.22	7.64	6.95	11.6/1.39	33.7	0.460	
	1240	0.294/0.22	7.85	6.96	10.8/1.28	-3.8	0.452	
	1245	0.297/0.22	7.60	6.96	10.8/1.28	-18.2	0.456	
	1250	0.296/0.22	7.43	6.99	11.6/1.39	-32.8	0.456	
12/9/97	1310	0.264/0.20	7.78	7.34	28.6/3.39	128.3	0.395	FA
	1315	0.294/0.22	8.35	7.00	8.5/0.99	61.1	0.453	
	1320	0.302/0.23	8.30	6.99	8.3/0.98	17.1	0.467	
	1325	0.302/0.22	8.34	7.00	8.1/0.95	-16.0	0.465	
	1330	0.304/0.23	8.40	7.00	8.1/0.95	-27.3	0.470	
12/10/97	1300	0.293/0.22	5.91	7.40	22.7/2.74	109.0	0.450	FA
	1305	0.306/0.23	7.15	7.10	7.3/0.88	95.9	0.479	
	1310	0.316/0.23	6.90	7.07	7.5/0.91	45.2	0.484	
	1315	0.313/0.23	7.26	7.05	7.5/0.90	18.0	0.482	
	1320	0.312/0.23	7.20	7.06	7.5/0.91	-17.8	0.480	
12/11/97	1945	0.268/0.20	10.72	7.33	38.2/4.26	-15.0	0.428	SJ
	1950	0.270/0.20	11.51	7.31	40.9/4.38	-13.5	0.418	
	1955	0.274/0.20	11.9	7.33	49.5/5.02	-10.8	0.421	
	2000	Sampling						
	2003	0.282/0.21	10.41	7.36	37.9/5.78	-3.9	0.434	
12/12/97	1602	0.260/0.19	10.31	7.43	73.1/7.95	4.4	0.398	SJ
	1605	0.256/0.19	10.76	7.42	74.2/7.86	7.5	0.398	
	1610	0.254/0.19	9.63	7.42	84.3/8.61	11.9	0.405	
	1615	0.259/0.19	9.49	7.48	75.6/8.54	15.3	0.426	
12/14/97	1650	0.314/0.22	8.88	7.17	11.5/1.33	7.5	0.483	SJ
	1655	0.313/0.22	8.80	7.16	11.1/1.29	-6.8	0.480	
	1700	0.311/0.22	8.71	7.15	10.7/1.25	-17.6	0.479	
	1705	Sampling						

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

SS-08B

Test Location

MP 2-C

Date	Time	TDS/SAL Water Level (feet/bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/27/97	1435	0.30/0.23	9.93	7.31	13.3/1.50	-69.6	0.477	FA
	1440	0.310/0.23	10.05	7.31	13.9/1.57	-60.7	0.478	
11/29/97	1730	0.316/0.24	10.04	7.32	8.7/0.98	-73.7	0.486	
	1735	0.316/0.24	10.42	7.32	9.2/1.02	-64.8	0.486	
12/1/97	1453	0.308/0.23	9.13	7.27	5.3/0.61	-58.5	0.473	SJ
	1503	0.300/0.22	9.08	7.27	4.2/0.47	-49.2	0.464	
	1509	0.303/0.23	9.31	7.27	3.9/0.44	-48.4	0.465	
	1513	0.301/0.22	8.87	7.28	4.7/0.55	-46.4	0.464	
12/3/97	1208	0.306/0.23	10.07	7.31	5.3/0.60	-71.0	0.471	SJ
	1212	0.307/0.23	9.91	7.32	4.8/0.54	-61.8	0.472	
	1217	0.307/0.23	9.82	7.32	4.7/0.52	-53.9	0.473	
	1226	0.309/0.23	9.91	7.33	4.6/0.52	-38.6	0.476	
12/4/97	1806	0.289/0.21	8.79	6.33	23.3/2.74	-27.5	0.445	SJ
	1810	0.288/0.21	8.61	6.87	34.9/4.08	-40.3	0.444	
	1814	0.288/0.21	8.42	7.04	33.7/3.94	-44.7	0.444	
12/5/97	1130	0.288/0.21	7.17	7.11	42.6/5.17	-61.0	0.445	SJ
	1138	0.290/0.22	6.46	7.14	42.2/5.19	-59.4	0.446	JP
	1143	0.290/0.22	6.05	7.14	41.5/5.15	-58.6	0.447	
	1149	0.288/0.22	3.89	7.22	41.6/5.76	-56.9	0.460	
	1155	0.303/0.22	4.13	7.24	32.7/4.22	-52.4	0.469	
	1202	0.308/0.23	4.45	7.27	20.7/2.64	-44.3	0.475	
	1206	0.310/0.23	4.51	7.28	18.0/2.32	-38.8	0.477	
	1211	0.311/0.23	4.48	7.29	15.8/2.05	-31.9	0.478	
12/6/97	1133	0.280/0.21	7.91	7.16	9.2/1.10	-73.2	0.431	JP
	1137	0.282/0.21	7.95	7.22	9.2/1.09	-70.0	0.434	
	1143	0.284/0.21	8.06	7.26	9.4/1.11	-63.6	0.437	
	1153	0.285/0.21	8.25	7.31	9.5/1.12	-50.1	0.438	
	1159	0.287/0.21	8.09	7.32	9.6/1.13	-43.2	0.441	

**M&E**



**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS-08 B

Test Location MP-2C

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/6/97	1255	0.302/0.23	8.22	7.26	8.0/0.94	-70.7	0.465	FA
	1300	0.303/0.23	8.24	7.27	7.9/0.93	-68.5	0.466	
	1305	0.304/0.23	8.13	7.29	7.8/0.92	-60.2	0.468	
	1310	0.304/0.23	8.16	7.29	7.8/0.92	-59.4	0.468	
12/7/97	1235	0.278/0.21	6.70	7.11	8.8/1.07	-67.6	0.432	FA
	1240	0.286/0.22	7.09	7.12	6.6/0.79	-66.0	0.461	
	1245	0.308/0.23	6.95	7.14	6.1/0.74	-58.7	0.474	
	1250	0.305/0.23	7.25	7.14	5.8/0.69	-56.9	0.468	
12/8/97	1300	0.279/0.21	7.48	7.10	24.3/2.88	-39.6	0.442	ABL
	1305	0.304/0.23	8.13	7.18	16.1/1.89	-37.1	0.469	
	1310	0.309/0.23	7.92	7.21	16.1/1.91	-33.6	0.477	
	1315	0.309/0.23	8.29	7.22	16.6/1.94	-28.9	0.476	
	1320	0.312/0.23	8.01	7.23	16.0/1.90	-24.7	0.481	
	1325	0.315/0.23	7.90	7.24	17.4/2.00	-19.6	0.484	
12/9/97	1345	0.315/0.23	8.73	7.20	17.8/2.07	-42.7	0.485	FA
	1350	0.317/0.24	8.96	7.22	17.5/2.03	-39.4	0.489	
	1355	0.321/0.24	8.83	7.24	17.8/2.06	-35.1	0.494	
	1400	0.321/0.24	8.94	7.25	17.5/2.03	-31.6	0.496	
12/10/97	1325	0.313/0.23	4.73	7.07	17.7/2.34	-29.8	0.480	FA
	1330	0.309/0.23	7.40	7.17	26.1/3.13	-33.5	0.478	
	1335	0.319/0.24	7.38	7.22	26.6/3.18	-29.7	0.490	
	1340	0.324/0.24	4.23	7.24	23.7/2.85	-25.5	0.497	
	1345	0.325/0.24	7.46	7.25	24.8/2.97	-21.2	0.499	
12/11/97	1725	0.321/0.24	10.73	7.19	26.6/2.93	-62.7	0.496	ABL
	1733	0.327/0.24	10.59	7.25	29.0/3.21	-46.8	0.499	
	1739	0.327/0.24	10.24	7.29	27.0/3.04	-37.6	0.506	
	1745	0.327/0.24	10.24	7.29	27.0/3.04	-37.6	0.506	
	1747	0.327/0.24	10.55	7.27	27.6/3.08	-37.7	0.504	
12/12/97	1315	0.339/0.25	7.85	7.18	31.9/3.78	-54.1	0.519	SJ
	1320	0.335/0.25	8.14	7.22	33.2/3.92	-48.1	0.515	
	1325	0.334/0.25	8.04	7.24	33.9/4.01	-40.6	0.514	
	1330	0.335/0.25	7.69	7.25	33.1/4.05	-31.9	0.513	

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well MP-2C

Test Location SS08B

[illegible]**M&E**



FIGURE 6-8  
DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD  
WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS08 B

Test Location MP 2-D

Date	Time	Water Level (feet bTOC)		Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/7/97	1300	0.317	0.24	5.26	7.16	7.7/0.98	-54.2	0.486	FA
	1305	0.281	0.20	6.21	7.15	8.6/1.05	-57.9	0.423	
	1310	0.262	0.19	6.56	7.19	5.5/0.67	-69.3	0.403	
	1315	0.262	0.19	6.56	7.20	5.3/0.64	-75.9	0.402	
	<del>1320</del>								
12/7/97	1330	0.288	0.21	7.03	7.21	6.4/0.77	-64.2	0.447	FA
	1335	0.294	0.22	7.21	7.19	5.7/0.68	-62.0	0.454	
	1340	0.302	0.22	7.09	7.18	5.6/0.67	-58.6	0.464	
	1345	0.303	0.23	7.26	7.17	5.6/0.67	-57.0	0.468	
12/8/97	1335	0.296	0.22	7.64	7.15	10.8/1.26	-11.4	0.460	HSR
	1340	0.311	0.23	7.64	7.09	8.9/1.06	-21.4	0.479	
	1345	0.311	0.23	7.87	7.08	9.2/1.09	-25.3	0.479	
	1350	0.312	0.23	7.77	7.09	9.2/1.09	-28.9	0.480	
12/9/97	1405	0.313	0.23	8.29	7.21	16.0/1.83	-25.3	0.477	FA
	1410	0.312	0.23	8.69	7.17	9.2/1.06	-26.5	0.480	
	1415	0.313	0.23	8.73	7.16	8.1/0.94	-31.5	0.482	
	1420	0.313	0.23	8.88	7.16	7.9/0.91	-33.0	0.482	
12/10/97	1350	0.341	0.25	5.76	7.27	28.4/3.50	-16.4	0.515	FA
	1355	0.321	0.24	7.30	7.20	7.5/0.90	-17.1	0.494	
	1400	0.317	0.24	7.68	7.16	6.8/0.80	-25.8	0.480	
	1405	0.315	0.24	7.59	7.16	7.1/0.85	-27.5	0.486	
12/11/97	1754	0.309	0.24	10.34	7.13	8.1/0.92	-42.8	0.493	SJ
	1804	0.321	0.24	10.09	7.14	8.4/0.94	-42.3	0.493	
	1809	0.317	0.24	10.01	7.14	7.4/0.83	-45.8	0.485	
	1815	Sampling							
	1819	0.319	0.24	9.50	7.15	7.9/0.90	-49.2	0.488	
12/12/97	1340	0.338	0.25	7.29	7.17	14.6/1.72	-19.9	0.335	SJ
	1345	0.333	0.25	7.84	7.10	8.8/1.03	-26.4	0.511	
	1350	0.332	0.25	8.15	7.09	8.7/1.02	-33.4	0.510	
	1355	0.331	0.25	8.28	7.09	8.7/1.03	-37.9	0.509	

**M&E**

Groundwater Monitoring Well MP-2D Test Location SS 08 B

# M&E

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

SS08 B

Test Location

MP 2-E

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
11/27/97	1405	0.263/0.20	9.17	7.24	10.4/1.19	-68.2	0.405	FA
	1415	0.259/0.19	9.14	7.26	9.6/1.11	-81.0	0.398	
	1420	0.258/0.19	9.21	7.27	9.7/1.11	-86.3	0.396	
11/29/97	1755	0.290/0.22	9.65	7.21	7.7/0.87	-71.8	0.443	
	1800	0.282/0.21	9.68	7.23	7.3/0.83	-81.1	0.433	
12/1/97	1543	0.247/0.18	8.70	7.16	6.3/0.72	-65.6	0.378	SJ
	1549	0.244/0.18	9.08	7.19	3.8/0.44	-90.1	0.376	
	1554	0.242/0.18	9.03	7.21	3.7/0.42	-99.8	0.373	
	1557	0.244/0.18	9.18	7.21	3.5/0.40	-103.5	0.374	
	1600	0.242/0.18	8.79	7.23	3.5/0.41	-107.1	0.374	
12/3/97	1355	0.250/0.19	7.29	7.31	3.2/0.39	-95.5	0.385	ASR
	1403	0.252/0.19	6.96	7.32	3.2/0.39	-95.9	0.387	
	1408	0.250/0.19	7.01	7.32	3.2/0.39	-96.9	0.385	
	1414	0.251/0.19	6.95	7.32	3.2/0.39	-97.9	0.385	
12/4/97	1838	0.270/0.20	8.54	7.16	14.0/1.61	-49.8	0.413	SJ
	1843	0.268/0.20	8.47	6.61	5.2/0.60	-45.1	0.413	
	1849	0.268/0.20	8.51	6.99	4.3/0.50	-62.7	0.413	
12/5/97	Following data transferred from Sheet 2						MP 2 D	SJ
	1219	0.258/0.19	4.62	7.27	28.4/3.64	-30.8	0.434	JP
	1226	0.258/0.19	4.46	7.24	20.1/2.60	-32.3	0.395	SJ
	1234	0.254/0.19	4.16	7.23	18.5/1.75	-52.6	0.390	
	1241	0.253/0.19	4.09	7.23	13.1/1.49	-57.2	0.390	
12/6/97	1340	0.272/0.20	7.40	7.18	14.2/1.70	-42.4	0.418	FA
	1345	0.263/0.20	7.86	7.19	7.4/0.87	-53.1	0.405	
	1350	0.259/0.19	7.86	7.20	6.2/0.74	-63.6	0.395	
	1355	0.255/0.19	7.86	7.22	6.4/0.76	-72.1	0.391	
	1400	0.254/0.19	7.71	7.23	6.0/0.71	-75.8	0.390	
12/7/97	1320	See Sheet 2-D						
	1325							
	1330							
	1335							
	1340							

**M&E**

## WURTSMITH AFB PILOT TESTING

### Groundwater Monitoring Well

SS08 B

### Test Location

MP 2-E

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1405	0.273/0.20	7.52	7.13	8.3/0.99	-55.2	0.420	FA
	1410	0.273/0.20	7.40	7.15	8.4/1.01	-62.8	0.421	
	1415	0.276/0.20	7.08	7.16	8.3/1.00	-68.9	0.424	
	1420	0.272/0.20	7.52	7.17	7.7/0.91	-73.1	0.418	
	1425	0.274/0.20	7.68	7.17	7.9/0.94	-75.6	0.423	
12/9/97	1425	0.312/0.23	7.42	7.13	15.1/1.77	-32.3	0.472	FA
	1430	0.308/0.23	8.17	7.10	8.2/0.97	-57.8	0.474	
	1435	0.306/0.23	7.93	7.12	8.0/0.95	-73.1	0.466	
	1440	0.300/0.22	8.22	7.14	7.3/0.86	-83.5	0.461	
	1445	0.299/0.22	8.22	7.15	7.3/0.85	-90.3	0.459	
12/10/97	1410	0.318/0.24	5.29 7.17	7.17	14.7/1.85	-29.6	0.474	ASR
	1415	0.303/0.23	7.13	7.13	6.8/0.81	-44.5	0.465	
	1420	0.303/0.23	7.04	7.14	6.6/0.80	-61.3	0.464	
	1425	0.299/0.22	7.44	7.15	6.3/0.76	-71.5	0.463	
12/11/97	1832	0.301/0.22	8.78	7.17	7.4/0.86	-67.9	0.466	SJ
	1837	0.302/0.22	8.41	7.19	7.2/0.84	-74.8	0.462	
	1840	0.298/0.22	9.04	7.20	6.8/0.78	-80.7	0.460	
	1845	Sampling			6.3			
	1849	0.295/0.22	8.96	8.99	7.2/0.72	-90.2	0.452	
12/12/97	1405	0.310/0.23	7.31	7.12	10.1/1.22	-45.6	0.473	SJ
	1407	0.307/0.23	7.37	7.14	8.9/1.06	-51.2	0.473	
	1410	0.306/0.23	7.35	7.17	8.3/0.99	-58.3	0.470	
	1415	0.306/0.23	7.55	7.18	8.1/0.96	-65.4	0.469	
12/14/97	1542	0.301/0.22	7.66	7.18	7.6/0.90	-47.6	0.462	SJ
	1549	0.304/0.23	8.39	7.20	8.5/0.99	-54.4	0.467	
	1552	0.304/0.23	8.60	7.20	8.7/1.02	-57.9	0.468	
	1555	Sampling						

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

### Groundwater Monitoring Well

SS08B

### Test Location

MP 3-C

Date	Time	TDS/ SAL Water Level (feet/ftOC)	Temp. (F)	pH	DO (mg/L)	ORP	SpL m/s Purge Rate (gpm)	Operator
11/29/97	1530	0.31/0.23	10.10	7.37	9.6/1.08	-74.1	0.474	FA
	1540	0.309/0.23	10.31	7.38	11.4/1.28	-63.2	0.477	
11/29/97	1805	0.306/0.23	10.43	7.34	7.6/0.84	-82.1	0.472	
	1810	0.310/0.23	10.43	7.37	7.3/0.81	-76.2	0.477	
12/1/97	1657	0.298/0.22	8.61	7.35	3.2/0.39	-56.8	0.460	SJ
	1704	0.304/0.22	8.80	7.35	3.1/0.36	-53.7	0.461	
	1709	0.300/0.22	9.20	7.36	3.1/0.36	-52.1	0.462	
12/3/97	1423	0.297/0.22	7.33	7.38	4.2/0.47	-90.0	0.455	FA
	1428	0.302/0.23	10.00	7.41	3.3/0.37	-81.9	0.465	
	1433	0.302/0.23	9.98	7.42	3.2/0.36	-73.2	0.465	
	1438	0.304/0.23	9.84	7.42	3.1/0.35	-66.8	0.468	
	1443	0.304/0.23	9.84	7.41	3.1/0.35	-59.5	0.468	
12/4/97	1910	0.291/0.22	9.70	7.35	4.7/0.57	-49.4	0.447	SJ
	1915	0.291/0.22	9.75	7.36	4.4/0.48	-45.6	0.448	
	1920	0.293/0.22	9.61	7.37	3.5/0.39	-40.2	0.450	
12/5/97	1324	0.290/0.22	8.34	7.34	12.9/1.49	-43.4	0.447	SJ
	1338	0.294/0.22	7.52	7.39	10.7/1.28	-32.1	0.452	JP
	1343	0.294/0.22	7.70	7.39	10.2/1.22	-27.9	0.453	
	1348	0.295/0.22	7.82	7.39	9.8/1.17	-25.2	0.454	
12/6/97				See Sheet	2-C			
12/7/97	1345	0.296/0.22	6.93	7.24	17.1/2.07	-55.3	0.453	FA
	1350	0.289/0.21	7.68	7.32	17.9/2.13	-52.2	0.444	
	1355	0.292/0.22	7.68	7.35	19.1/2.28	-46.1	0.449	
	1400	0.292/0.22	7.63	7.35	19.3/2.30	-43.7	0.448	

**M&E**



# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

SS08 B

Test Location

MP 3-C

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/6/97	1430	0.270/0.20	7.75	7.25	23.1/2.77	-74.4	0.414	FA
	1435	0.283/0.21	7.67	7.29	26.7/3.18	-61.4	0.437	
	<del>1440</del>	<del>0.288/0.21</del>	<del>7.35</del>	<del>7.31</del>	<del>26.5/3.19</del>	<del>-54.5</del>	<del>0.444</del>	
	<del>1445</del>	<del>0.291/0.22</del>	<del>6.85</del>	<del>7.33</del>	<del>26.3/3.20</del>	<del>-46.3</del>	<del>0.448</del>	no flow
	1450	0.313/0.20	7.83	7.32	24.4/2.91	-39.4	0.422	
	1455	0.287/0.21	8.05	7.35	27.6/3.26	-35.0	0.441	
	1500	0.287/0.21	8.39	7.35	26.3/3.08	-29.9	0.441	
12/9/97	1450	0.281/0.21	8.33	7.25	41.0/4.85	-88.2	0.432	FA
	1455	0.280/0.21	8.23	7.28	45.8/5.39	-77.6	0.429	
	1500	0.280/0.21	8.38	7.30	44.8/5.25	-62.3	0.432	
	1505	0.252/0.21	8.51	7.32	42.0/4.91	-47.6	0.435	
12/10/97	1435	0.324/0.24	5.66	7.22	31.3/3.99	-72.1	0.463	FA
	1440	0.284/0.21	7.57	7.29	41.7/4.98	-63.7	0.435	
	1445	0.284/0.21	7.64	7.31	43.1/5.15	-51.9	0.438	
	1450	0.281/0.21	7.86	7.32	42.7/5.07	-43.2	0.433	
12/11/97	1540	0.331/0.24	6.79	7.20	33.7/4.04	-75.0	0.474	ASR
	1545	0.296/0.22	7.68	7.27	35.0/4.17	-66.2	0.455	
	1550	0.296/0.22	7.33	7.30	37.0/4.45	-56.9	0.455	
	1555	SF6 Sampling NAB 3C GW002						
	1600	0.293/0.22	7.10	7.31	37.8/4.57	-40.3	0.450	
12/12/97	1208	0.316/0.23	8.81	7.23	29.3/3.39	-63.9	0.477	SJ
	1213	0.304/0.23	8.98	7.29	30.8/3.56	-55.6	0.467	
	1219	0.302/0.23	9.29	7.31	32.1/3.66	-44.8	0.466	
	1225	0.303/0.23	9.05	7.32	32.9/3.74	-38.9	0.467	
12/14/97	1400	0.315/0.23	7.77	7.31	26.7/3.15	-53.5	0.479	SJ
	1405	0.303/0.23	7.42	7.33	25.1/3.01	-47.6	0.464	
	1410	0.302/0.23	7.39	7.34	25.4/3.05	-46.1	0.464	
	1415	Sampling						

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

SS-08B

Test Location

MP 3-D

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	SpCms Purge Rate (gpm)	Operator
11/27/97	1545	0.274/0.20	9.43	7.19	12.7/1.11	-71.3	0.422	FA
	1550				9.7			
	1630	0.268/0.20	9.71	7.22	7.3/0.83	-82.3	0.412	
	1635	0.261/0.20	9.73	7.22	7.5/0.85	-80.3	0.411	
11/29/97	1815	0.275/0.20/0.08	7.19	7.19	6.8/0.76	-86.8	0.423	
	1820	0.273/0.20/0.07	7.20	7.20	6.9/0.78	-91.6	0.420	
12/1/97	1720	0.259/0.19	8.87	7.17	4.2/0.48	-88.2	0.399	SJ
	1725	0.260/0.19	8.74	7.16	3.5/0.40	-96.9	0.401	
	1739	0.262/0.19	8.64	7.18	3.1/0.36	-110.2	0.404	
12/3/97	1449	0.272/0.20	9.63	7.24	3.9/0.44	-75.9	0.418	ASR
	1457	0.269/0.20	9.79	7.22	3.1/0.35	-88.7	0.414	
	1501	0.270/0.20	9.75	7.23	3.0/0.34	-91.4	0.415	
	1506	0.272/0.20	9.54	7.24	3.0/0.34	-95.1	0.418	
	1512	0.272/0.20	9.46	7.24	3.0/0.34	-96.5	0.419	
12/4/97	1924	0.279/0.21	8.94	7.20	10.1/1.98	-54.4	0.434	SJ
	1928	0.282/0.21	8.95	7.17	6.3/0.71	-61.9	0.436	
	1933	0.286/0.21	8.83	7.17	4.3/0.50	-75.9	0.441	
12/5/97	1356	0.286/0.21	7.44	7.19	12.5/1.48	-48.6	0.449	JP
	1402	0.297/0.22	7.69	7.15	11.5/1.37	-75.3	0.453	
	1407	0.297/0.22	7.57	7.15	10.9/1.30	-83.9	0.457	
	1424	0.296/0.22	7.58	7.16	8.9/1.06	-97.9	0.456	
12/6/97	1207	0.277/0.21	7.57	7.20	11.2/1.32	-37.8	0.425	FA
	1215	0.275/0.20	7.81	7.15	7.0/0.84	-58.0	0.423	
	1230	0.278/0.21	8.03	7.10	8.6/0.78	-74.1	0.428	
	1225							
12/7/97	1405	0.291/0.22	7.54	7.17	11.3/1.31	-39.3	0.446	FA
	1410	0.296/0.22	7.78	7.10	5.8/0.69	-62.3	0.455	
	1415	0.297/0.22	7.83	7.10	5.8/0.68	-67.8	0.456	
	1420	0.296/0.22	7.99	7.09	5.7/0.68	-72.4	0.456	



**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS 08B

Test Location NP 3-D

Date	Time	Water Level: (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1505	0.295/0.22	8.26	7.05	8.3/0.97	-50.4	0.455	FA
	1510	0.297/0.22	8.29	7.05	8.3/0.97	-55.9	0.458	
	1515	0.301/0.22	8.25	7.05	8.4/0.99	-62.4	0.463	
	1520	0.303/0.23	8.08	7.05	8.5/1.00	-66.8	0.465	
12/9/97	1510	0.308/0.23	8.10	7.08	17.0/1.95	-39.0	0.475	FA
	1515	0.314/0.24	8.43	7.05	11.3/1.43	-64.5	0.485	
	1520	0.322/0.24	8.72	7.03	7.9/0.92	-77.6	0.404	
	1525	0.324/0.24	8.31	7.04	5.2/0.96	-84.5	0.495	
	1530	0.321/0.24	8.53	7.04	7.6/0.88	-89.5	0.494	
12/10/97	1455	0.285/0.21	6.63	7.34	48.5/5.94	-32.0	0.437	FA
	1500	0.284/0.21	6.61	7.34	50.0/6.12	-25.2	0.438	
	1505	0.287/0.21	6.34	7.34	49.1/6.05	-19.5	0.441	
	1510	0.286/0.21	6.11	7.34	47.5/5.89	-15.5	0.441	
12/11/97	1605	0.297/0.22	6.31	7.33	49.3/6.11	-31.5	0.459	ASR
	1610	0.319/0.24	4.72	7.20	44.1/5.66	-24.3	0.492	
	1615	0.324/0.24	4.12	7.16	36.9/4.83	-25.9	0.499	
	1620	0.322/0.24	3.52	7.15	31.2/4.14	-26.8	0.494	
	Pipe Frozen and removed the icicles and started again							
	1700	0.347/0.26	9.37	7.01	9.3/1.06	-44.9	0.535	
	1707	0.246/0.26	9.71	7.00	6.6/0.97	-54.8	0.527	
	1712	0.347/0.26	9.40	7.01	9.2/1.05	-61.1	0.535	
12/12/97	1246	0.354/0.27	8.29	7.00	9.6/1.13	-50.8	0.544	SJ
	1252	0.352/0.26	8.28	7.00	9.8/1.15	-54.5	0.543	
	1257	0.355/0.27	8.18	7.00	10.7/1.25	-56.0	0.545	
	1303	0.355/0.27	7.92	7.00	11.2/1.32	-57.3	0.544	
12/14/97	1427	0.361/0.27	7.47	7.06	12.9/1.55	-19.6	0.566	SJ
	1431	0.369/0.28	6.82	7.02	11.2/1.36	-25.2	0.567	
	1435	0.369/0.28	6.92	7.02	11.0/1.34	-26.6	0.567	
	1440	Sampling						



# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS08 B

Test Location MP 4-C

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (°F)	pH	DO (mg/L)	ORP	Purge Rate SpL m/s (gpm)	Operator
11/27/97	1650	0.330/0.25	9.89	7.34	29.4/3.33	-55.8	0.509	FA
	161700	0.335/0.25	9.77	7.38	30.1/3.41	-39.2	0.515	
11/29/97	1700	0.346/0.26	10.01	7.37	15.8/1.78	-40.4	0.533	
	1705	0.346/0.26	10.03	7.37	15.2/1.71	-33.7	0.532	
12/1/97	1800	0.327/0.24	9.09	7.34	12.0/1.39	-75.6	0.506	SJ
	1805	0.330/0.25	8.78	7.34	12.4/1.43	-68.7	0.505	
	1811	0.328/0.25	8.94	7.35	12.7/1.47	-62.5	0.507	
12/3/97	1524	0.339/0.25	8.76	7.39	11.8/1.37	-66.9	0.522	SJ
	1530	0.339/0.25	8.91	7.40	12.4/1.43	-59.1	0.522	
	1535	0.341/0.25	8.67	7.40	12.7/1.48	-51.0	0.524	
	1541	0.341/0.26	8.80	7.41	13.0/1.51	-42.9	0.529	
12/4/97	1948	0.287/0.22	8.76	7.83	18.4/2.07	-58.4	0.476	SJ
	1953	0.391/0.24	9.11	7.20	16.8/2.04	-23.1	0.505	
	1958	0.329/0.25	9.24	7.27	15.8/1.81	-33.6	0.509	
12/5/97	1428	0.311/0.23	7.22	7.24	10.2/1.22	-98.4	0.489	JP
	1433	0.330/0.25	7.34	7.32	11.3/1.34	-87.0	0.508	
	1438	0.334/0.25	7.98	7.35	13.1/1.56	-74.0	0.514	
	1443	0.334/0.25	8.22	7.36	14.3/1.68	-64.3	0.513	
	1448	0.337/0.25	8.04	7.37	16.0/1.90	-56.6	0.518	
12/6/97	1405	0.282/0.21	5.75	7.23	18.6/2.40	-77.3	0.443	FA
	1410	0.289/0.21	7.56	7.24	29.5/3.53	-73.4	0.446	
	1415	0.318/0.24	7.74	7.28	30.6/3.64	-60.8	0.490	
	1420	0.322/0.24	8.14	7.31	30.6/3.61	-51.5	0.496	
12/7/97	1425	0.316/0.24	6.07	7.15	23.9/3.11	-74.9	0.487	FA
	1430	0.313/0.23	7.59	7.24	41.2/4.93	-63.0	0.484	
	1435	0.321/0.24	7.74	7.30	40.5/4.83	-48.6	0.495	
	1440	0.323/0.24	7.78	7.32	41.0/4.87	-43.2	0.499	
	1445	0.326/0.24	7.70	7.33	40.4/4.81	-35.6	0.503	

**M&E**

**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS08 B Test Location MP 4-C

Date	Time	Water Level: (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1525	0.316/0.24	7.78	7.15	49.9/6.00	-62.6	0.483	FA
	1530	0.318/0.24	7.99	7.26	60.1/7.11	-45.0	0.491	
	1535	0.326/0.24	7.80	7.30	59.5/7.06	-32.5	0.501	
	1540	0.327/0.24	7.81	7.32	58.1/6.91	-26.2	0.504	
12/9/97	1535	0.322/0.24	7.19	7.06	9.7/1.22	-91.4	0.504	FA
	1540	0.316/0.24	8.52	7.25	71.5/8.36	-68.3	0.489	
	1545	0.328/0.24	8.05	7.30	73.6/8.69	-55.5	0.505	
	1550	0.329/0.25	8.04	7.31	73.3/8.64	-49.3	0.506	
	1555	0.331/0.25	8.01	7.33	72.7/8.60	-39.9	0.511	
12/10/97	1515	0.342/0.25	3.31	7.14	32.8/4.28	-15.0	0.511	FA
	1520	0.333/0.25	6.84	7.06	7.5/0.91	-39.7	0.514	
	1525	0.348/0.26	7.05	7.07	7.2/0.88	-56.4	0.538	
	1530	0.354/0.26	6.81	7.07	7.3/0.89	-62.7	0.546	
12/10/97	1615	0.295/0.22	6.69	7.24	50.0/6.26	-74.8	0.456	FA
	1620	0.300/0.22	7.62	7.25	74.2/8.88	-59.1	0.465	
	1625	0.326/0.24	7.55	7.32	77.0/9.21	-39.0	0.504	
	1630	0.330/0.25	7.71	7.34	77.4/9.23	-28.2	0.510	
12/11/97	1451	0.293/0.22	6.05	7.14	68.35/8.53	-55.9	0.451	SJ
	1455	0.304/0.23	6.32	7.20	74.1/9.21	-49.2	0.476	
	1457	0.315/0.24	6.61	7.23	79.9/9.78	-42.0	0.489	
	1500	0.319/0.24	7.10	7.25	82.5/9.96	-35.0	0.496	
	1505	Sampling						
	1507	0.335/0.25	6.56	7.30	82.6/10.11	-19.4	0.518	
12/12/97	1115	0.311/0.23	8.91	7.21	77.2/8.94	-37.1	0.486	SJ
	1120	0.328/0.25	9.14	7.27	80.4/9.23	-25.3	0.504	
	1125	0.337/0.25	9.12	7.30	79.5/9.15	-14.4	0.519	
	1130	0.341/0.26	9.10	7.32	79.5/9.15	-6.9	0.524	
12/14/97	1248	0.318/0.24	8.65	7.21	89.8/10.46	-31.2	0.497	SJ
	1254	0.334/0.25	8.80	7.29	98.4/11.41	-17.6	0.514	
	1259	0.340/0.25	8.67	7.32	98.0/11.39	-4.3	0.523	
	1305	Sampling						

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS08-B

Test Location MP 4 D

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (F)	pH	%/ DO (mg/L)	ORP	SpC mS Purge Rate (gpm)	Operator
11/27/97	510	0.317/0.24	4.37	7.17	18.3/2.08	-64.1	0.487	FA
	520	0.315/0.24	9.61	7.15	18.2/2.04	-71.1	0.486	
11/29/97	1715	0.333/0.25	10.0	7.15	7.8/0.88	-75.6	0.511	
	1720	0.333/0.25	9.90	7.16	8.3/0.94	-86.4	0.512	
12/1/97	1817	0.331/0.25	8.64	7.15	5.6/0.65	-76.6	0.506	SJ
	1822	0.328/0.25	8.27	7.14	4.1/0.48	-89.7	0.506	
	1827	0.330/0.25	8.18	7.14	3.5/0.41	-98.3	0.507	
12/3/97	1555	0.354/0.26	8.71	7.18	3.4/0.40	-82.9	0.544	SJ
	1600	0.354/0.26	8.59	7.20	3.2/0.37	-89.8	0.545	
	1607	0.353/0.26	8.72	7.21	3.1/0.36	-92.3	0.543	
	1615	Sampling						
	1621	0.353/0.26	8.63	7.22	3.0/0.35	-93.9	0.543	
12/4/97	2009	0.362/0.27	5.72	7.19	33.0/4.07	-30.4	0.569	SJ
	2012	0.371/0.28	5.35	7.16	26.4/3.28	-38.2	0.572	
	2015	0.373/0.28	4.72	7.13	14.7/1.85	-53.1	0.573	
12/5/97	1455	0.358/0.27	7.63	7.15	15.7/1.86	-61.2	—	IP
	1500	0.367/0.28	7.99	7.13	13.0/1.54	-82.10	0.568	
	1505	0.368/0.28	7.79	7.14	12.5/1.49	-92.7	0.566	
	1510	0.367/0.28	7.78	7.15	11.9/1.41	-97.5	0.566	
	1515	0.366/0.27	7.79	7.16	10.9/1.29	-101.5	0.563	
12/6/97	1425	0.333/0.25	7.32	7.29	27.4/3.20	-40.0	0.527	FA
	1430	0.346/0.26	8.06	7.10	11.6/1.37	-44.9	0.533	
	1435	0.354/0.26	8.11	7.08	7.1/0.84	-59.6	0.545	
	1440	0.355/0.27	8.25	7.08	6.9/0.82	-69.0	0.542	
12/7/97	1450	0.340/0.25	7.03	7.18	25.7/2.96	-24.1	0.522	FA
	1455	0.353/0.26	7.78	7.10	6.8/0.80	-56.8	0.545	
	1500	0.358/0.27	7.79	7.10	6.4/0.77	-64.9	0.552	
	1505	0.360/0.27	7.95	7.10	6.2/0.74	-72.0	0.557	



Groundwater Monitoring Well SS08 B Test Location MP 4-D

**M&E**

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well

SS08 B

Test Location

MP 5-C

Date	Time	TDS/SAL Water Level (feet bTOC)	Temp. (°C)	pH	DO (mg/L)	ORP	SPCms Purge Rate (gpm)	Operator
11/2	1726	0.226/0.12	10.04	7.48	29.8/3.35	-55.9	0.342	FA
11/29/97	1735	0.229/0.17	10.11	7.52	30.0/3.38	-40.3	0.352	
11/29/97	1830	0.230/0.17	10.51	7.39	12.3/1.38	-88.9	0.354	
	1835	0.232/0.17	10.53	7.48	13.6/1.51	-77.2	0.356	
12/1/97	1834	0.216/0.16	8.84	7.32	19.6/2.16	-96.9	0.329	SJ
	1839	0.217/0.16	9.65	7.47	13.3/1.52	-89.4	0.334	
	1844	0.219/0.16	9.21	7.50	13.9/1.60	-81.9	0.338	
12/3/97	1632	0.223/0.16	9.19	7.54	12.4/1.43	-79.9	0.341	SJ
	1637	0.222/0.16	9.37	7.56	13.3/1.53	-72.2	0.342	
	1645	0.225/0.17	9.51	7.58	14.4/1.64	-60.3	0.347	
	1648	0.225/0.17	9.55	7.58	14.5/1.65	-57.8	0.346	
12/4/97	2025	0.235/0.17	9.74	7.19	16.6/1.87	-48.1	0.362	SJ
	2029	0.235/0.17	9.79	7.42	15.8/1.78	-50.9	0.360	
	2033	0.234/0.17	9.81	7.51	15.3/1.74	-47.0	0.356	
12/5/97	1524	0.231/0.17	7.97	7.47	11.3/1.34	-104.1	0.348	JP
	1531	0.225/0.17	8.20	7.53	13.1/1.55	-88.1	0.346	
	1538	0.227/0.17	8.43	7.54	14.1/1.66	-76.1	0.350	
	1548	0.230/0.17	8.25	7.56	15.9/1.87	-63.8	0.353	
12/6/97	1450	0.353/0.26	6.94	7.10	13.9/1.70	-75.5	0.523	FA
	1455	0.251/0.19	8.23	7.29	17.7/2.09	-81.1	0.382	
	1500	0.234/0.17	8.62	7.38	17.7/2.06	-77.5	0.358	
	1505	0.230/0.17	8.55	7.42	18.1/2.12	-75.6	0.353	
	1510	0.226/0.17	8.74	7.46	18.6/2.16	-69.3	0.347	
12/7/97	1505	0.332/0.24	6.25	7.30	15.5/1.91	-89.9	0.478	FA
	1510	0.231/0.17	8.15	7.48	18.4/2.17	-75.0	0.355	
	1515	0.228/0.17	7.96	7.50	19.2/2.27	-68.9	0.351	
	1520	0.225/0.17	8.14	7.51	19.6/2.31	-62.5	0.346	
	1525	0.224/0.17	8.29	7.53	20.0/2.35	-57.8	0.345	

M&E



**FIGURE 6-8**  
**DATA SHEET 1 - GROUNDWATER MONITORING WELL RECORD**  
**WURTSMITH AFB PILOT TESTING**

Groundwater Monitoring Well SS08B

Test Location MP 5-C

Date	Time	Water Level (feet bTOC)	Temp. (F)	pH	DO (mg/L)	ORP	Purge Rate (gpm)	Operator
12/8/97	1605	0.366/0.27	5.66	7.24	17.0/2.13	-80.8	0.565	FA
	1610	0.242/0.18	8.20	7.36	22.4/2.63	-77.0	0.365	
	1615	0.223/0.16	8.49	7.45	24.9/2.91	-67.4	0.342	
	1620	0.220/0.16	8.73	7.49	25.7/3.00	-55.9	0.339	
	1625	0.221/0.16	8.52	7.50	26.6/3.11	-50.2	0.341	
12/9/97	1620	0.262/0.19	8.34	7.32	28.2/3.33	-90.7	0.397	FA
	1625	0.243/0.18	8.54	7.40	30.3/3.55	-84.5	0.371	
	1630	0.237/0.18	8.35	7.45	30.1/3.53	-77.1	0.364	
	1635	0.233/0.17	8.40	7.48	30.3/3.54	-69.7	0.356	
12/10/97	1535	0.357/0.27	5.34	7.48	33.2/3.02	-75.6	0.487	FA
	1540	0.299/0.22	4.97	7.18	26.2/3.36	-64.5	0.458	FA
	1545	0.273/0.20	4.92	7.22	29.8/3.82	-55.1	0.418	
	1550	0.269/0.20	4.84	7.22	30.5/3.91	-54.3	0.412	
12/11/97	1342	0.231/0.17	8.18	7.20	30.7/3.61	95.2	0.354	SJ
	1355	0.232/0.17	8.10	7.25	31.0/3.64	94.7	0.355	
	1403	0.231/0.17	8.15	7.27	31.1/3.67	94.7	0.357	
	1408	0.231/0.17	8.52	7.32	31.2/3.65	94.2	0.356	
	1411	0.232/0.17	8.54	7.35	31.5/3.67	94.1	0.358	
	1415	Sampling						
Note: ORP readings are unusual SJ								
12/12/97	1014	0.229/0.16	9.65	7.07	29.2/3.32	137.3	0.355	SJ
	1020	0.232/0.17	9.76	7.16	29.2/3.31	135.6	0.358	
	1031	0.235/0.17	9.77	7.32	30.0/3.41	130.2	0.363	
	1035	0.236/0.17	10.12	7.36	30.4/3.42	128.3	0.363	
12/14/97	1138	0.201/0.15	9.05	6.89	24.7/2.85	118.4	0.313	SJ
	1144	0.213/0.16	9.13	7.06	25.6/2.95	114.7	0.328	
	1152	0.230/0.17	7.78	7.23	25.7/3.07	113.5	0.358	
	1157	0.231/0.17	7.31	7.28	24.7/2.98	111.2	0.355	
	1200	Sampling						

# GROUNDWATER MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Groundwater Monitoring Well SS08 B

Test Location MP 5-D

Date	Time	OS/SAL Water Level (feet bTOC)	Temp. (F)	pH	%/ DO (mg/L)	ORP	Spl mS Purge Rate (gpm)	Operator
11/27/97	1745	0.220/0.16	9.89	7.28	21.6/2.45	-66.9	0.338	FA
	1755	0.221/0.16	9.88	7.26	21.9/2.47	-67.8	0.340	
11/29/97	1845	0.220/0.16	10.07	7.33	5.7/0.65	-86.2	0.338	
	1850	0.220/0.16	10.03	7.33	6.0/0.68	-93.6	0.339	
12/1/97	1850	0.208/0.15	8.76	7.43	10.7/1.19	-71.5	0.317	SJ
	1856	0.206/0.15	8.89	7.32	3.9/0.45	-87.9	0.317	
	1900	0.207/0.15	8.66	7.31	3.5/0.40	-93.3	0.319	
	1906	0.208/0.15	9.12	7.32	3.2/0.37	-99.1	0.321	
12/3/97	1657	0.212/0.16	9.21	7.38	3.6/0.42	-76.7	0.325	SJ
	1702	0.210/0.16	9.26	7.37	3.1/0.35	-86.4	0.323	
	1707	0.210/0.16	9.45	7.37	2.9/0.33	-91.9	0.323	
	1712	Sampling						
	1715	Sampling						
	1718	0.214/0.16	9.84	7.38	2.8/0.31	-100.0	0.329	
12/4/97	2039	0.205/0.15	9.48	7.36	6.4/0.66	-64.9	0.315	SJ
	2042	0.205/0.15	9.51	7.34	3.9/0.43	-74.1	0.315	
	2045	0.206/0.15	9.46	7.34	3.3/0.37	-82.9	0.318	
	2049	0.207/0.15	9.41	7.34	3.2/0.37	-86.8	0.319	
12/5/97	1555	0.210/0.16	7.98	7.37	14.8/1.75	-77.8	0.323	JP
	1600	0.206/0.15	8.26	7.35	13.9/1.51	-91.9	0.318	
	1606	0.206/0.15	7.93	7.35	11.3/1.34	-101.1	0.317	
	1615	0.208/0.15	7.98	7.36	9.8/1.16	-108.7	0.320	
12/6/97	1515	0.215/0.16	7.63	7.48	16.9/1.98	-60.9	0.325	FA
	1520	0.207/0.15	8.08	7.40	8.2/0.96	-62.3	0.317	
	1525	0.201/0.15	8.11	7.35	5.9/0.70	-70.3	0.309	
	1530	0.200/0.15	8.19	7.34	5.4/0.63	-77.5	0.307	
	1535	0.200/0.15	8.14	7.34	5.3/0.63	-79.8	0.307	
12/7/97	1530	0.209/0.15	8.25	7.37	6.6/0.77	-60.2	0.321	FA
	1535	0.209/0.15	8.14	7.35	5.4/0.64	-72.4	0.321	
	1540	0.208/0.15	8.17	7.35	5.2/0.62	-78.3	0.320	
	1545	100 Ks	Stable					

1550

**M&E**

Test Location *MP 5D*

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08B

Test Location MP 1-A

[\* - I think these  
are incorrect  
residual PPM in  
old piping!  
Changed Ppy on

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1355	-	-	20.4	0.0	0.1	0.0	203*	FA
29/11	1405			20.4	0.0	0.0	0.0	162*	
11/28/97	1600			20.3	0.0	0.0	0.0	11.4	
	1605			20.3	0.0	0.0	0.0	9.5	
12/1/97	1358			20.1	0.1	0		16.0	SJ
	1408			20.2	0.1	0		18.0	
	1411			20.3	0.1	0		18.0	
12/3/97	1026			20.4	0	0		1.0	SJ
	1029			20.4	0	0		1.0	
	1032			20.3	0	0		3.2	
	1036			20.2	0	0		5.4	
12/4/97	1640			20.7	0	0	0	8.2-10.6	SJ
	1643			20.7	0	0	0	8.2-10.6	
	1647			20.6	0	0	0	8.2-10.6	
	1654			20.6	0	0	0	3.5-5.9	
12/5/97	0924			20.5	0	0	0	2.1	SJ
	0926			20.5	0	0	0	2.1	
	0933			20.4	0	0	0	2.7	
	0936			20.4	0	0	0	3.5	
12/6/97	1015			PURGING					FA
	1020			20.3	0.0	0.0	0.0	2.6	
	1025			20.3	0.0	0.0	0.0	2.4	
12/7/97	1030			20.4	0.0	0.0	0.0	0.8	FA
	1035			20.4	0.0	0.0	0.0	0.5	
	1040			20.4	0.0	0.0	0.0	0.5	
12/8/97	1135			20.6	0.0	0.0	0.0	0.9	FA
	1140			20.5	0.0	0.0	0.0	0.9	
	1145			20.6	0.0	0.0	0.0	0.9	
12/9/97	1230			20.2	0.0	0.0	0.0	0.7	FA
	1235			20.2	0.0	0.0	0.0	0.7	

12-40

**M&E**

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08 B

Test Location MP 1A

[illegible]

M&amp;=

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well

SSD 8 B

Test Location

MP 1-B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	16 20	—	—	20.4	0.0	0.0	0.0	133 *	FA
29 ft	16 26	—	—	20.4	0.0	0.0	0.0	120 *	
11/28/97	16 10	—	—	20.2	0.0	0.0	0.0	5.7	
	16 15	—	—	20.2	0.0	0.0	0.0	5.7	
12/1/97	14 18			20.3	0.2	0		12.0	SJ
	14 21			20.3	0.2	0		12.0	
	14 24			20.3	0.2	0		14.0	
12/3/97	10 42			20.1	0.0	0.0		36.2	SJ
	10 46			20.1	0.0	0.0		3.2	
	10 53			20.1	0.0	0.0	—	10-3.2	JP
	10 56			20.1	0.0	0.0	—	3.2	
12/4/97	17 16			19.8	0.3	0	0.87	3.5-5.9	SJ
	17 20			19.9	0.3	0	0.90	6.9	
	17 23			19.8	0.3	0	0.92	6.8	
	17 37			19.9	0.2	0	0.91	4.3	
12/5/97	09 50			19.8	0.0	0	1.5	2-8	SJ
	09 54			19.8	0	0	1.5	3.1	
	09 59			19.8	0	0	1.5	3.0	
12/6/97	10 25			20.3	0.0	0.0	0.0	1.6	FA
	10 30			20.3	0.0	0.0	0.0	2.0	
	10 35			20.3	0.0	0.0	0.0	2.0	
12/7/97	10 45			20.0	0.0	0.0	1.7	0.5	FA
	10 50			20.0	0.0	0.0	1.7	0.3	
	10 55			20.0	0.0	0.0	1.7	0.3	
12/8/97	11 55			20.2	0.0	0.0	1.1	0.9	FA
	12 00			20.1	0.0	0.0	1.1	0.9	
	12 05			20.1	0.0	0.0	1.1	0.9	
12/9/97	12 40			20.0	0.0	0.0	1.1	0.3	FA
	12 45			20.0	0.0	0.0	1.0	0.7	

**M&E**

11/27/97 16:20  
 11/28/97 16:10  
 12/1/97 14:18  
 12/3/97 10:42  
 12/4/97 17:16  
 12/5/97 09:50  
 12/6/97 10:25  
 12/7/97 10:45  
 12/8/97 11:55  
 12/9/97 12:40

NP / B

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS-08 B

Test Location MP 2-A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	14 35	—	—	20.4	0.0	0.0	0.0	116.0*	FA
	14 40	—	—	20.4	0.0	0.0	0.0	109.0*	
<del>11/28/97</del>	<del>16 20</del>	<del>—</del>	<del>—</del>	<del>20.2</del>	<del>0.0</del>	<del>0.0</del>	<del>0.0</del>	<del>3.8</del>	
	<del>16 25</del>	<del>—</del>	<del>—</del>	<del>20.2</del>	<del>0.0</del>	<del>0.0</del>	<del>0.0</del>	<del>5.9</del>	
11/29/97	17 15	—	—	20.0	0.0	0.0	0.0	9.5	
	17 20	—	—	20.0	0.0	0.0	0.0	7.6	
12/1/97	14 29			20.6	0.2	0		14.0	SJ
	14 32			20.6	0.2	0		10.0	
	14 35			20.6	0.2	0		10.0	
12/3/97	11 01			20.1	0.0	0.0		1.0-3.2	JP
	11 05			20.1	0.0	0.0		1.0-3.2	
	11 11			20.1	0.0	0.0		1.0-3.2	
12/4/97	17 45			20.5	0	0	0	4.3	SJ
	17 49			20.5	0	0	0	5.1	
	17 53			20.5	0	0	0	5.3	
12/5/97	10 05			20.3	0	0	0	3.5	SJ
	10 08			20.1	0	0	0	4.5	
	10 16			20.2	0	0	0	4.6	
12/6/97	10 46			20.4	0.0	0.0	0.08	1.7	FA
	10 50			20.4	0.0	0.0	0.07	1.3	
	10 55			20.5	0.0	0.0	0.00	1.1	
12/7/97	11 10			20.2	0.0	0.0	0.0	0.1	
	11 15			20.2	0.0	0.0	0.0	0.3	
	11 20			20.2	0.0	0.0	0.0	0.1	
12/8/97	12 05			20.4	0.0	0.0	0.0	0.6	FA
	12 10			20.4	0.0	0.0	0.0	0.6	
	12 15			20.4	0.0	0.0	0.0	0.6	
12/9/97	12 50			20.2	0.0	0.0	0.0	0.3	FA
	12 55			20.2	0.0	0.0	0.0	0.3	

**M&E**





# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well

SS-08B

Test Location

MP 2-B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27	1450	—	—	20.4	0.0	0.0	0.0	101.7	FA
<del>11/29/97</del>	<del>1620</del>	<del>—</del>	<del>—</del>	<del>20.2</del>	<del>0.0</del>	<del>0.0</del>	<del>0.0</del>	<del>—</del>	
	<del>1625</del>	<del>—</del>	<del>—</del>	<del>20.2</del>	<del>0.0</del>	<del>0.0</del>	<del>—</del>		
11/29/97	1720	—	—	20.0	0.0	0.0	0.0	7.6	
	1725	—	—	20.0	0.0	0.0	0.0	9.5	
12/1/97	1440			20.3	0.2	0		12.0	SJ
	1443			20.3	0.2	0		10.0	
	1446			20.1	0.2	0		8.0	
	1449			20.1	0.2	0		6.0	
12/3/97	1114			20.0	0.1	0.0		5.4	JP
	1121			20.0	0.1	0.0		1.0-3.2	
	1124			20.1	0.1	0.0		1.0	
12/4/97	1805			20.4	0.1	0	0	4.2	SJ
	1807			20.4	0.1	0	0	3.8	
	1812			20.4	0.1	0	0	3.9	
12/5/97	1023			20.0	0	0	0	5.1	SJ
	1026			20.0	0	0	0	5.4	
	1030			20.0	0	0	0	5.2	
12/6/97	1120			20.5	0.0	0.0	—	0.9-1.1	JP
	1134			20.6	0.0	0.0	0.0	0.9	
	1136			20.7	0.0	0.0	0.0	0.8	
12/7/97	1235			20.4	0.0	0.0	0.0	0.5	FA
	1240			20.4	0.0	0.0	0.0	0.5	
	1245			20.4	0.0	0.0	0.0	0.5	
12/8/97	1220			20.4	0.0	0.0	0.0	0.9	FA
	1225			20.4	0.0	0.0	0.0	0.9	
	1230			20.4	0.0	0.0	0.0	0.6	
				20.2	0.0	0.0	0.0	0.3	FA
12/9/97	1255			20.2	0.0	0.0	0.0	0.7	
	1300								

**M&E**

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08 B

Test Location HP 2B

[illegible]

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08B

Test Location MP-3A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1500	—	—	20.4	0.0	0.0	0.0	109.2	FA
11/29/97	1730	—	—	19.9	0.1	0.0	0.0	13.3	
	1735			19.8	0.1	0.0	0.0	11.4	
12/1/97	1454			19.8	0.2	0		10.0	SJ
	1457			19.8	0.2	0		10.0	
	1502			19.8	0.2	0		10.0	
12/3/97	1131			20.3	0	0		1.0-3.2	SJ
	1135			20.3	0	0		1.0	
	1145			20.5	0	0		1.0	
12/4/97	1820			20.5	0	0	0	7.9	SJ
	1823			20.5	0	0	0	5.6	
	1826			20.5	0	0	0	5.6	
12/5/97	1037			20.1	0	0	0	4.7	SJ
	1040			20.1	0	0	0	5.3	
	1043			20.1	0	0	0	5.8	
12/6/97	1155			20.7	0.0	0.0	0.0	0.4	JP
	1200			20.8	0.0	0.0	0.0	0.6	
	1205			20.8	0.0	0.0	0.0	0.6	
12/7/97	1245			20.2	0.0	0.0	0.0	0.3	FA
	1250			20.2	0.0	0.0	0.0	0.3	
	1255			20.2	0.0	0.0	0.0	0.3	
12/8/97	1235			20.5	0.0	0.0	0.0	0.9	FA
	1240			20.5	0.0	0.0	0.0	0.9	
	1245			20.5	0.0	0.0	0.0	0.9	
12/9/97	1305			20.2	0.0	0.0	0.0	0.3	FA
	1310			20.3	0.0	0.0	0.0	0.3	

**M&E**

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08 B

Test Location MP 3-A

[illegible]

# M&E

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08B

Test Location MP-3B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1510	—	—	20.3	0.0	0.0	0.0	<del>98.0</del>	FA
11/29/97	1740			19.9	0.1	0.0	0.0	116.0	
	1745	—	—	19.9	0.1	0.0	0.0	7.6	7.6
12/1/97	1510			20.1	0.2	0		12.0	SJ
	1513			20.1	0.2	0		8.0	
	1516			20.1	0.2	0		6.0	
	1518			20.1	0.2	0		6.0	
12/3/97	1149			20.5	0	0		1.0	SJ
	1157			20.5	0	0		1.0	
	1207			20.5	0	0		1.0	
12/4/97	1836			20.5	0	0	0	7.4	SJ
	1839			20.5	0	0	0	6.2	
	1842			20.5	0	0	0	5.7	
12/5/97	1048			20.1	0	0	0	5.4	SJ
	1051			20.1	0	0	0	5.5	
	1055			20.1	0	0	0	6.1	
12/6/97	1205			20.8	0.0	0.0	0.0	0.6	FA
	1210			20.7	0.0	0.0	0.0	0.6	
	1215			20.7	0.0	0.0	0.0	0.6	
12/7/97	1255			20.1	0.0	0.0	0.0	0.3	FA
	1300			20.1	0.0	0.0	0.0	0.3	
	1305			20.1	0.0	0.0	0.0	0.3	
12/8/97	1250			20.4	0.0	0.0	0.0	0.6	FA
	1255			20.4	0.0	0.0	0.0	0.6	
	1300			20.5	0.0	0.0	0.0	0.6	ABN
12/9/97	1310			20.3	0.0	0.0	0.0	0.3	FA
	1315			20.3	0.0	0.0	0.0	0.3	
	1320			20.4	0.0	0.0	0.0	0.3	



## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SD8B

Test Location HP 3-B

[illegible]**M&E**

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08B

Test Location MP-4A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1515	—	—	20.4	0.0	0.0	0.0	98.0*	FA
11/29/97	1620	—	—	20.2	0.0	0.0	0.0	3.8	
	1625	—	—	20.2	0.0	0.0	0.0	5.7	
12/1/97	1525			20.0	0.2	0		10.0	SJ
	1528			20.0	0.2	0		8.0	
	1532			20.1	0.2	0		8.0	
12/3/97	1218			20.5	0	0		3.2	SJ
	1225			20.5	0	0		1.0	
	1229			20.5	0	0		1.0	
12/4/97	1909			20.6	0	0	0	4.3	SJ
	1913			20.6	0	0	0	4.4	
	1916			20.6	0	0	0	4.4	
12/5/97	1104			20.3	0	0	0	2.1	SJ
	1107			20.3	0	0	0	1.9	
	1112			20.4	0	0	0	1.7	
12/6/97	1256			20.7	0.0	0.0	0.0	0.4	FA
	1300			20.7	0.0	0.0	0.0	0.6	
	1305			20.7	0.0	0.0	0.0	0.4	
12/7/97	1315			20.2	0.0	0.0	0.0	0.3	FA
	1320			20.2	0.0	0.0	0.0	0.3	
	1325			20.2	0.0	0.0	0.0	0.3	
12/8/97	1307			20.5	0.0	0.0	0.0	0.6	ASR
	1311			20.5	0.0	0.0	0.0	0.6	
	1315			20.5	0.0	0.0	0.0	0.6	
12/9/97	1325			20.4	0.0	0.0	0.0	0.3-0.7	ASR
	1330			20.4	0.0	0.0	0.0	0.3-0.7	
	1345			20.3	0.0	0.0	0.0	0.3-0.7	

After purging





Vapor Monitoring Well SS08B Test Location KP 4-A

[illegible]

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well

CS08B

Test Location

MP-4B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/29/97	1530	-	-	20.4	0.10	0.0	0.0	94.6	FA
	1540	-	-	20.4	0.10	0.0	0.0	91.0	
11/29/97	1640	-	-	19.8	0.10	0.0	0.0	7.6	
	1645	-	-	19.8	0.10	0.0	0.0	9.5	
12/1/97	1540			20.3	0.2	0		6.0	SJ
	1543			20.3	0.2	0		8.0	
	1546			20.2	0.2	0		8.0	
12/3/97	1233			20.4	0	0		1.0	SJ
	1236			20.4	0	0		1.0	
	1239			20.4	0	0		1.0	
12/4/97	1919			20.6	0	0	0	4.9	SJ
	1922			20.6	0	0	0	4.4	
	1925			20.6	0	0	0	3.8	
12/5/97	1117			20.5	0	0	0	1.3	SJ
	1121			20.6	0	0	0	1.3	
	1124			20.6	0	0	0	1.2	
12/6/97	1318			20.7	0.0	0.0	0.0	0.6	FA
	1325			20.7	0.0	0.0	0.0	0.6	
	1330			20.7	0.0	0.0	0.0	0.4	
12/7/97	1330			20.2	0.0	0.0	0.0	0.3	FA
	1335			20.3	0.0	0.0	0.0	0.3	
	1340			20.3	0.0	0.0	0.0	0.3	
12/8/97	1318			20.5	0.0	0.0	0.0	0.3-0.6	ASR
	1322			20.6	0.0	0.0	0.0	0.3-0.6	
	1327			20.6	0.0	0.0	0.0	0.3-0.6	
12/9/97	1347			20.4	0.0	0.0	0.0	0.3	ASR
	1352			20.4	0.0	0.0	0.0	0.3	
	1356			20.4	0.0	0.0	0.0	0.3	



# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well SS08 B

Test Location MP 5A

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1550	—	—	20.4	0.0	0.0	0.0	94.6	FA
	1650	—	—	20.3	0.0	0.0	0.0	<del>83.9</del> 83.9	
11/29/97	1755	—	—	20.0	0.0	0.0	0.0	20.9	
	1800	—	—	20.0	0.0	0.0	0.0	13.3	
12/1/97	1556			20.7	0	0		12.0	SJ
	1559			20.7	0	0		10.0	
	1604			20.8	0	0		6.0	
12/3/97	1404			20.2	0	0		21.0	
	1407			20.2	0	0		<del>15.0</del>	
	1412			20.2	0	0		9.8	
	1419	0.17		20.2	0	0		9.8	
12/4/97	1934			20.6	0	0	0	4.5	SJ
	1937			20.6	0	0	0	3.6	
	1944			20.6	0	0	0	2.5	
	1952			20.6	0	0	0	3.2	
12/5/97	1129			20.7	0	0	0	1.3	SJ
	1133			20.7	0	0	0	0.9	
	1137			20.7	0	0	0	0.9	
	1141			20.8	0	0	0	0.9	JP
12/6/97	1340			20.7	0.0	0.0	0.0	0.8	FA
	1348			20.7	0.0	0.0	0.0	0.8	
	1350			20.7	0.0	0.0	0.0	0.6	
12/7/97	1345			20.3	0.0	0.0	0.0	0.5	FA
	1350			20.3	0.0	0.0	0.0	0.5	
	1355			20.3	0.0	0.0	0.0	0.3	
	<del>1400</del>								
12/8/97	1337			20.6	0.0	0.0	0.0	0.6	ASR
	1341			20.6	0.0	0.0	0.0	0.6	
	1346			20.6	0.0	0.0	0.0	0.6	
12/9/97	1400			20.4	0.0	0.0	0.0	0.3	FA
	1405			20.4	0.0	0.0	0.0	0.3	

After  
1910 hours

**M&E**

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well 5508B

Test Location NP-SA

[illegible]

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well

SS08B

Test Location

MP-5B

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/27/97	1630			20.3	0.0	0.0	0.0	76.7	FA
	1636			20.3	0.0	0.0	0.0	83.9	
11/29/97	1800	-	-	20.0	0.0	0.0	0.0	7.6	
	1810	-	-	20.0	0.0	0.0	0.0	19.0	
12/1/97	1655			20.9	0.2	0		4.0	ST
	1700			20.9	0.2	0		2.0	
	1703			20.8	0.2	0		2.0	
12/3/97	1422			20.0	0.0	0.0		34.0	ABR
	1426			19.8	0.1	0.0		34.8	ABR
	1430			20.1	0.0	0.0		16.4	
	1437			20.1	0.0	0.0		7.6	
	1440			20.1	0.0	0.0		5.4	
12/4/97	2008			20.7	0	0	0	1.5	ST
	2014			20.7	0	0	0	1.7	
	2017			20.7	0	0	0	2.4	
	2019			20.7	0	0	0	1.5	
12/5/97	1153			20.8	0	0	0	0.8	JP
	1157			20.8	0	0	0	0.9	
	1204			20.8	0	0	0	0.6	
	1207			20.8	0	0	0	0.6	
12/6/97	1355			20.7	0.0	0.0	0.0	0.6	FA
	1400			20.7	0.0	0.0	0.0	0.6	
	1405			20.7	0.0	0.0	0.0	0.6	
12/7/97	1405			20.5	0.0	0.0	0.0	0.3	FA
	1410			20.5	0.0	0.0	0.0	0.3	
	1415			20.5	0.0	0.0	0.0	0.3	
12/8/97	1349			20.6	0.0	0.0	0.0	0.3-6	ABR
	1400			20.6	0.0	0.0	0.0	0.3	
	1405			20.7	0.0	0.0	0.0	0.3	FA
12/7/97	1415			20.4	0.0	0.0	0.0	0.3	

14 20

20.4

M&amp;E

0.0 0.0

0.0

0.3

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well 5508B

Test Location MPSB

[illegible]

# VAPOR MONITORING WELL RECORD WURTSMITH AFB PILOT TESTING

Vapor Monitoring Well

SS 08-B

Test Location

MP-6

Date	Time	Vacuum (inches H2O)	Temp. (F)	% O2	% CO2	% CH4	% Helium	PID (ppm)	Operator
11/29/97	1830	—	—	20.0	0.0	0.0	0.0	11.4	FA
	1835	—	—	20.1	0.0	0.0	0.0	11.4	
12/1/97	1713			20.8	0.2	0		2.0	SJ
	1717			20.6	0.2	0		2.0	
	1722			20.6	0.2	0		2.0	
12/6/97	1405			20.7	0.0	0.0	0.0	22.2	FA
	1410			20.7	0.0	0.0	0.0	18.9	
	1415			20.7	0.0	0.0	0.0	16.5	
12/7/97	1420			20.5	0.0	0.0	0.0	7.5	FA
	1425			20.5	0.0	0.0	0.0	7.2	
	1430			20.6	0.0	0.0	0.0	6.7	
12/8/97	1410			20.7	0.0	0.0	0.0	4.5	FA
	1415			20.7	0.0	0.0	0.0	4.5	
	1420			20.7	0.0	0.0	0.0	4.5	
12/9/97	1425			20.4	0.0	0.0	0.0	3.5	FA
	1430			20.5	0.0	0.0	0.0	3.5	
	1435			20.5	0.0	0.0	0.0	3.5	
12/10/97	1500			20.8	0.0	0.0	0.0	2.4	FA
	1505			20.7	0.0	0.0	0.0	2.4	
	1510			20.7	0.0	0.0	0.0	2.4	
12/11/97	2016			20.0	0	0	0	1.1	SJ
	2019			19.8	0	0	0	1.5	
	2022			20.0	0	0	0	1.1	
				20.1	0	0	0.06	2.1	
12/12/97	1333			20.1	0	0	0.06	2.4	SJ
	1338			20.1	0	0	0.07	2.4	
	1343			20.1	0	0	0.07	2.4	
	1347			20.0	0	0	0.09	2.8	
12/14/97	1502			19.9	0	0	0.07	4.8-5.5	SJ
	1511			20.2	0	0	0.08	4.8-5.5	

**M&E**

1518

20.1

0

0

0.08 4.0-4.8



SYSTEM  
Carbon out (2)

### Test Location

5508B

[illegible]

M&amp;E

# VAPOR MONITORING WELL RECORD

## WURTSMITH AFB PILOT TESTING

### Vapor Monitoring Well

System out<sup>IN</sup> (z)  
VE-6

### Test Location

5508B

[illegible]

**APPENDIX G**  
**PROJECT PHOTOGRAPHS**

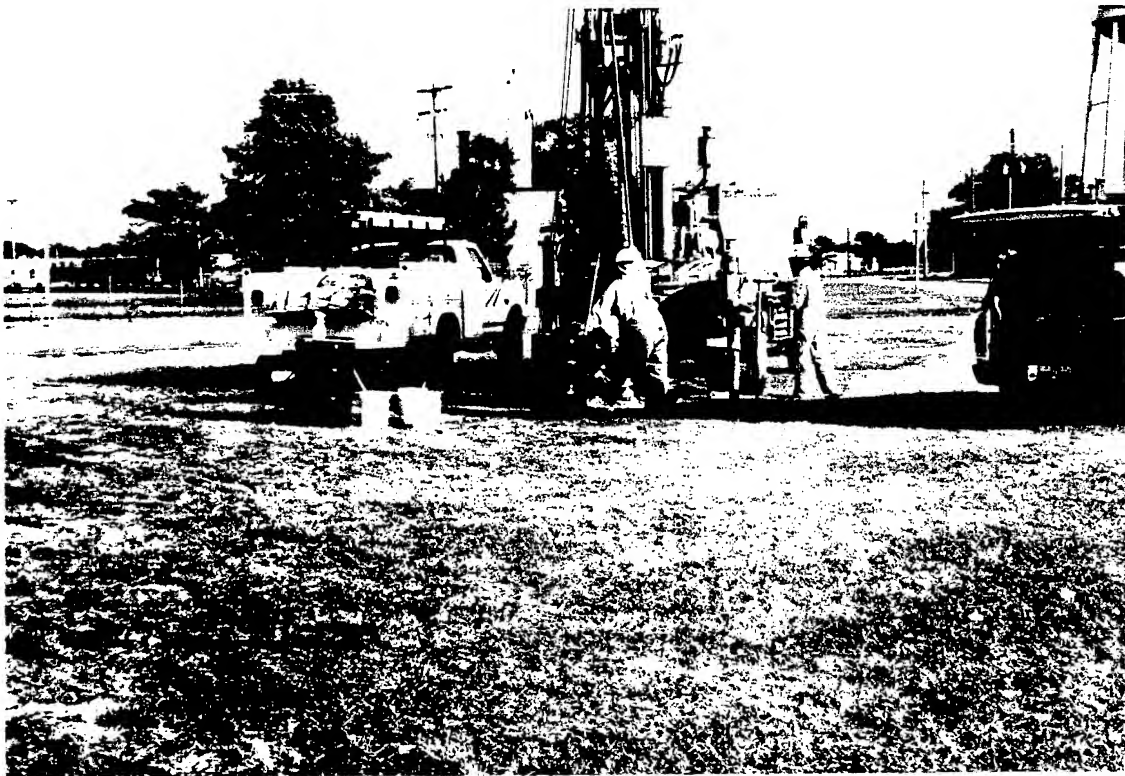


Photo 1: Site SS-06 Well Drilling (Benzene Plant and Huron Avenue in the Background)

10-28-97

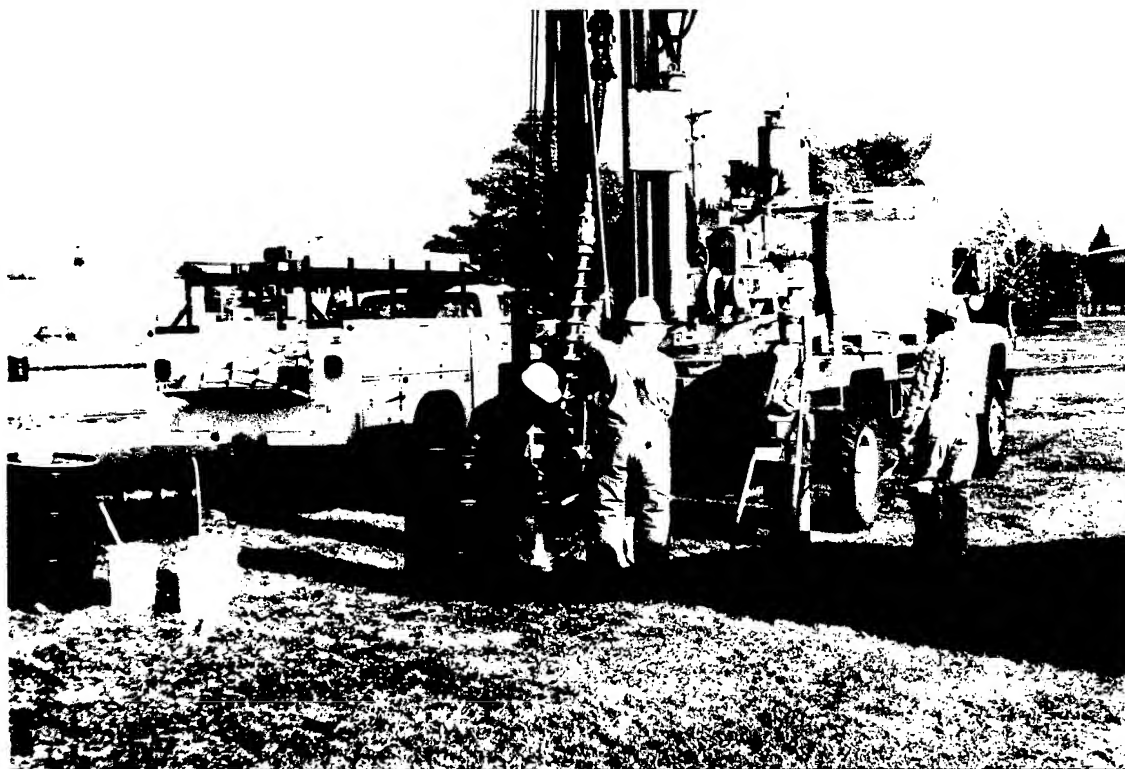


Photo 2: SPT, Split-Spoon-Sampling and Lithology Logging at Sparge Well Drilling, Site SS-06

10-28-97



Photo 3: Excavation for Power Supply Connection from Benzene Plant, Microtunneling Underneath Railroad 11-06-97

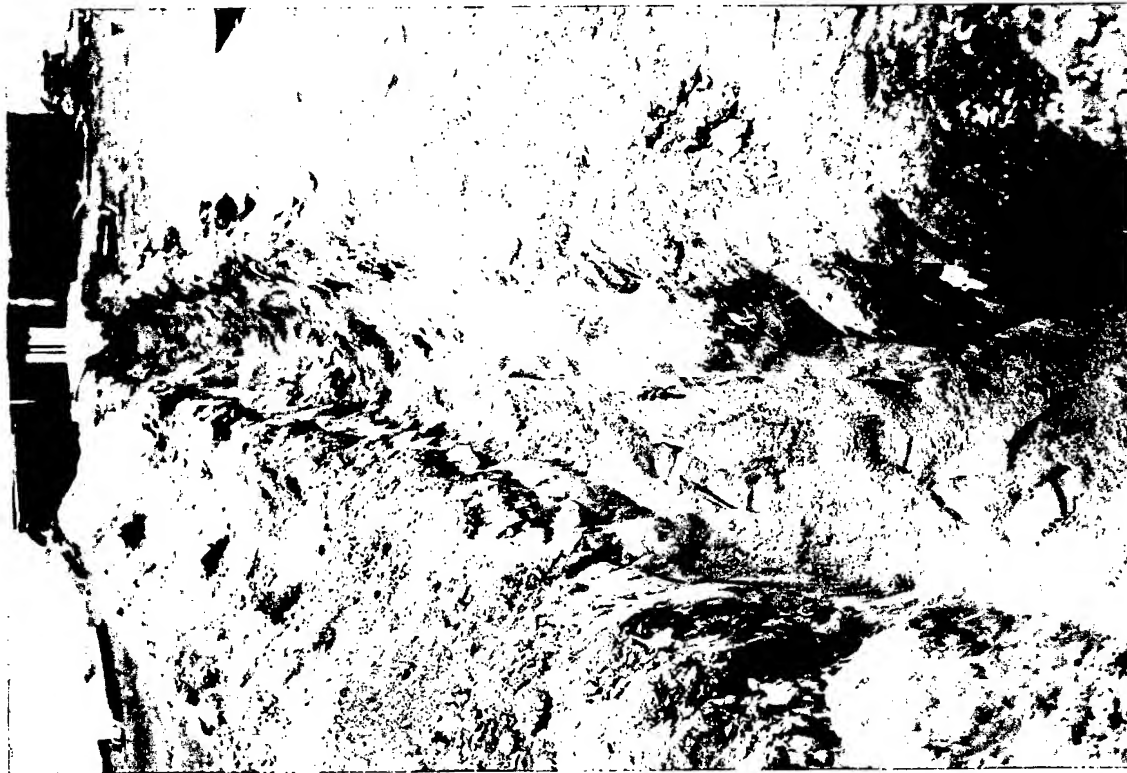


Photo 4: Excavation from Power Supply to Site SS-06 11-06-97



Photo 5: Hand Digging for Power Supply Near Benzene Plant Building (#397)

11-06-97



Photo 6: Monitoring Well Cluster Drilling by 9 1/4" ID HSA and Electrical Switch Board Connection at Site SS-06

11-07-97



Photo 7: AS Well, SVE Well and Monitoring Wells  
Site SS-06 (Background Huron Ave.)

11-10-97

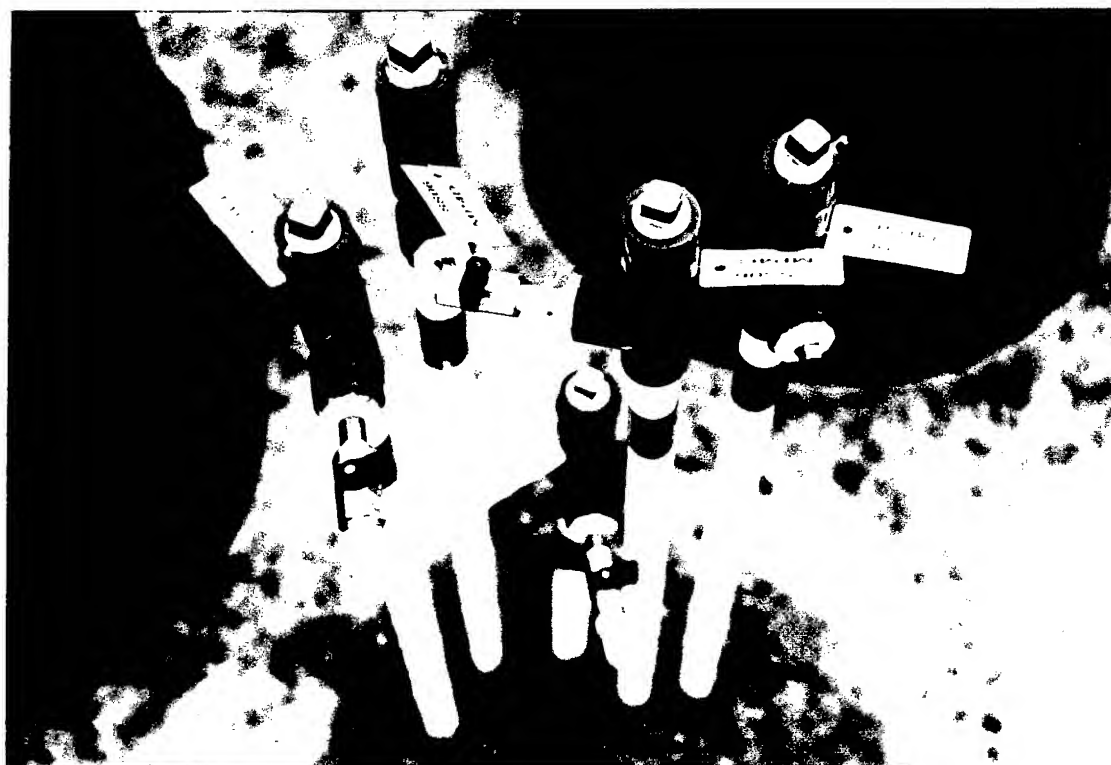


Photo 8: Cluster of Monitoring Wells  
(Site SS-06, MP4A through MP4E)

11-10-97





Photo 9: Site SS-06 SVE/Sparge Trailer, He and SF<sub>6</sub>  
Gas Cylinders, Carbon Canister Set-Up

11-14-97

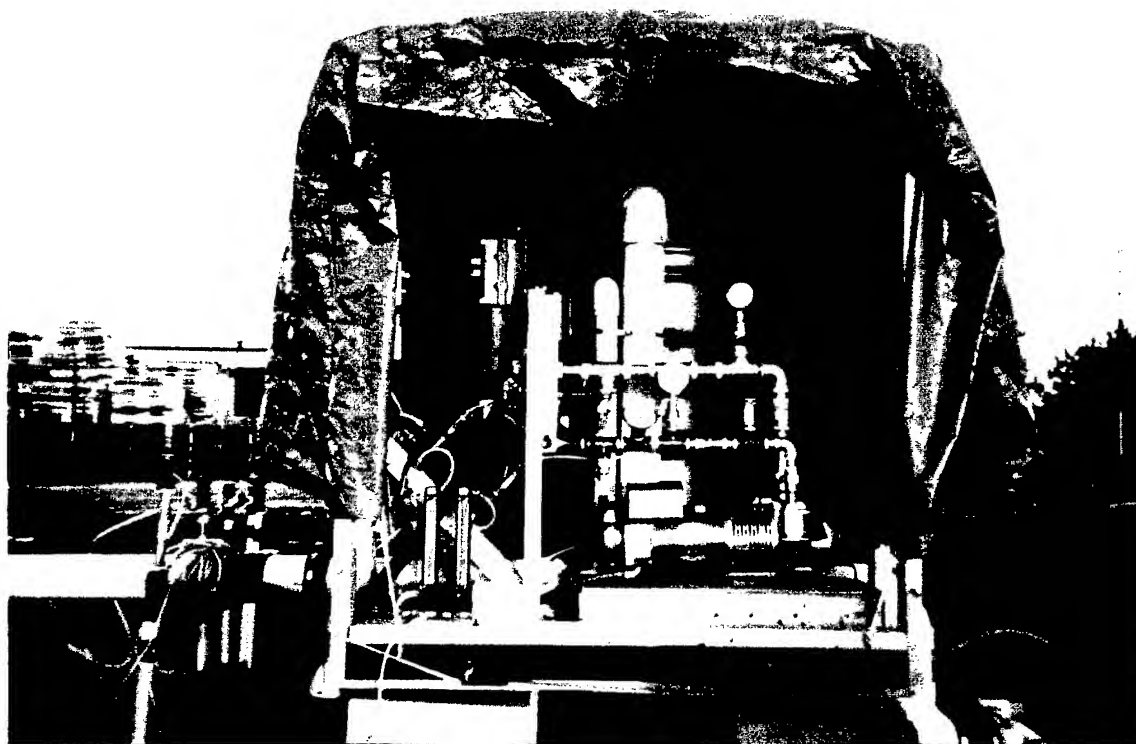


Photo 10: Sparge System in Operation at Site SS-06

11-20-97





Photo 11: Carbon Off-Gas Treatment System

11-14-97

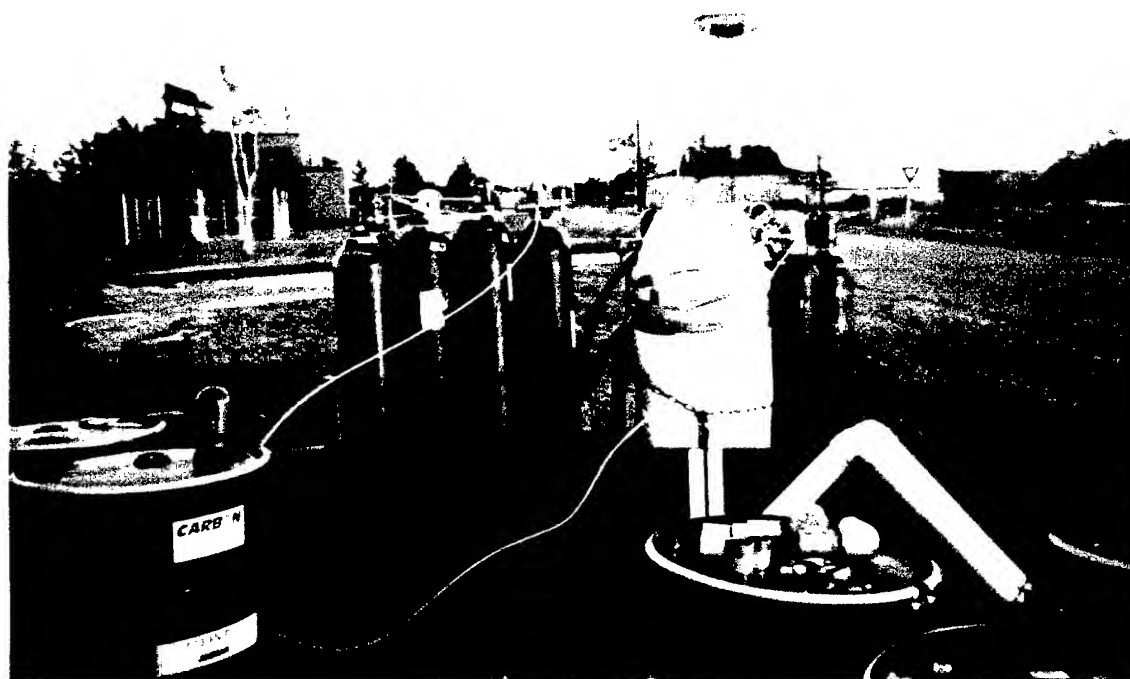


Photo 12: Carbon Changeout and Helium and Sulfur Hexafluoride Cylinders with Heat Pad

11-15-97

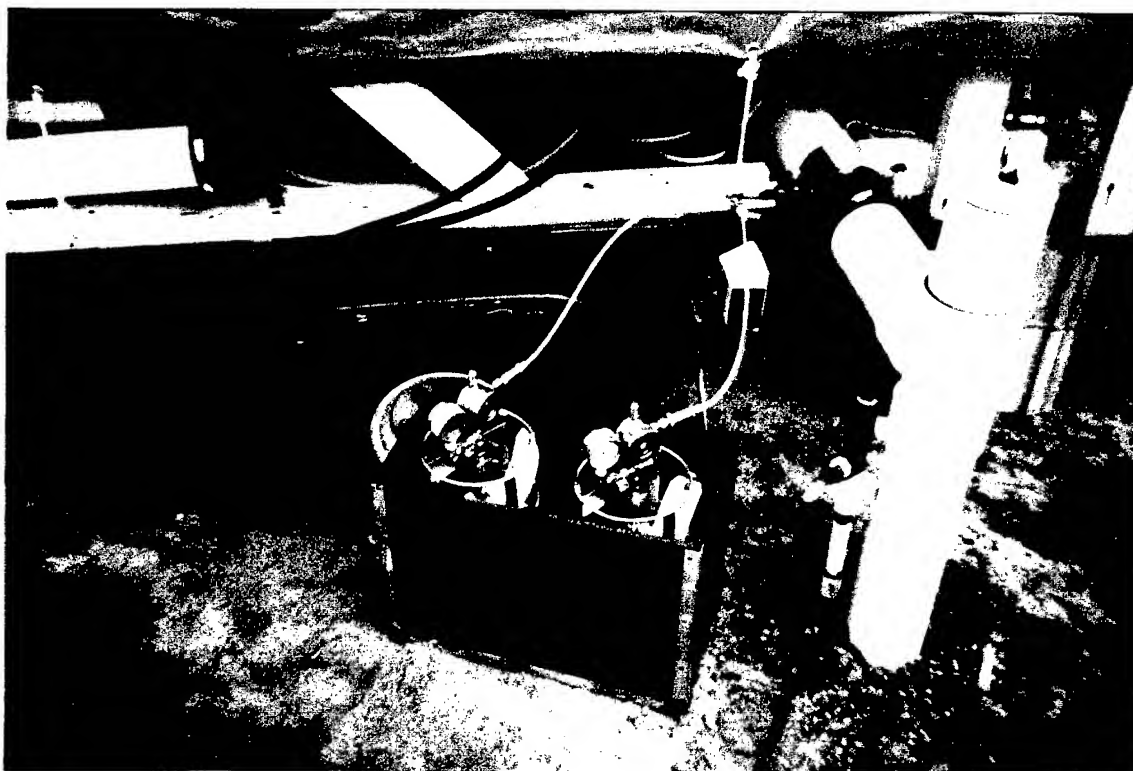


Photo 13: Summa Canister Vapor Sampling from  
Extraction Well (with Field Duplicate)

11-18-97



Photo 14: Drill Cuttings from SS-06 Well Installation

11-14-97



Photo 15: Drilling and Well Installation at Site SS-08A,  
SVE and Vapor Monitoring Wells

11-11-97



Photo 16: SVE and Vapor Monitoring Wells and Soil Cuttings  
at Site SS-08A

11-11-97



Photo 17: Vapor Monitoring Wells, Soil Cuttings, Bentonite Chip, and Fencing at Site SS-08A

11-11-97

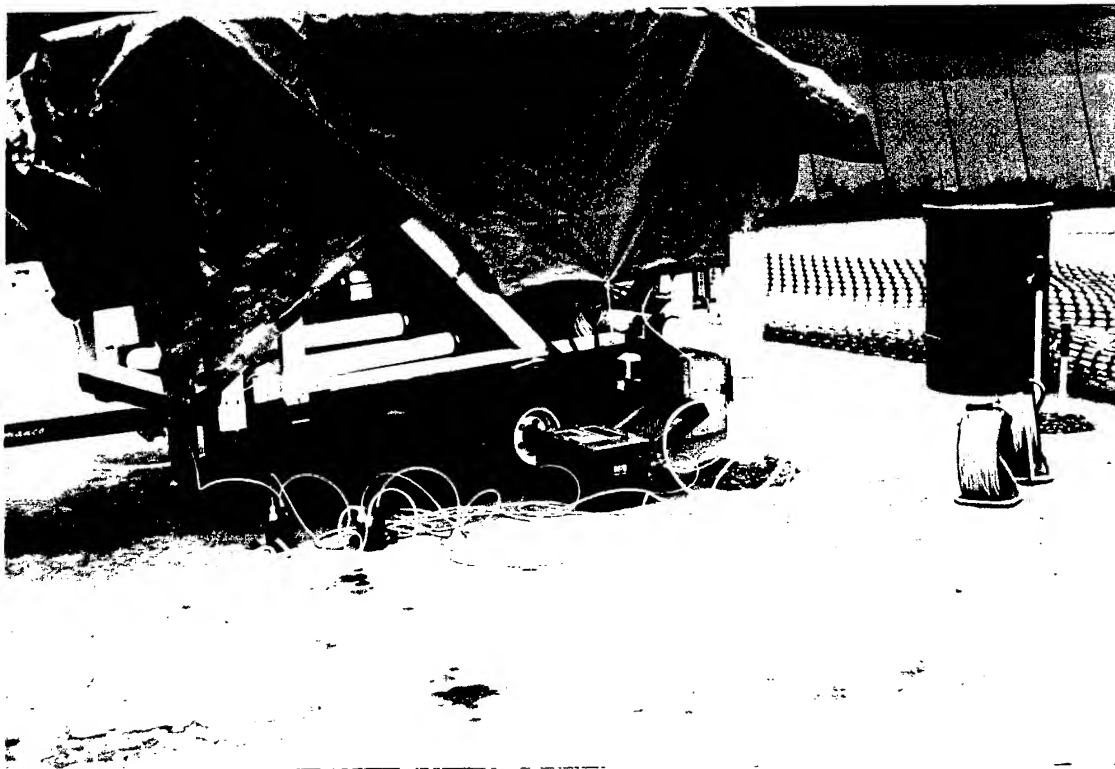


Photo 18: Transient SVE Test Using Hermit 2000 Data Logger and Two Transducers

11-26-97

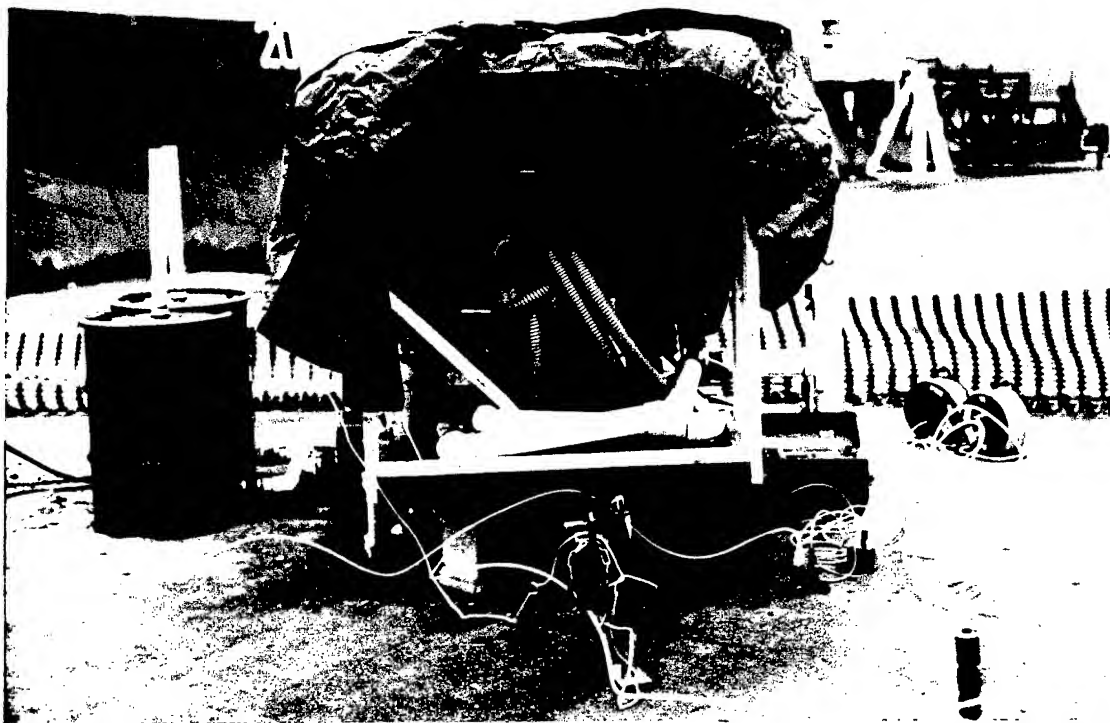


Photo 19: Soil Vapor Extraction Test at Site SS-08A

11-26-97

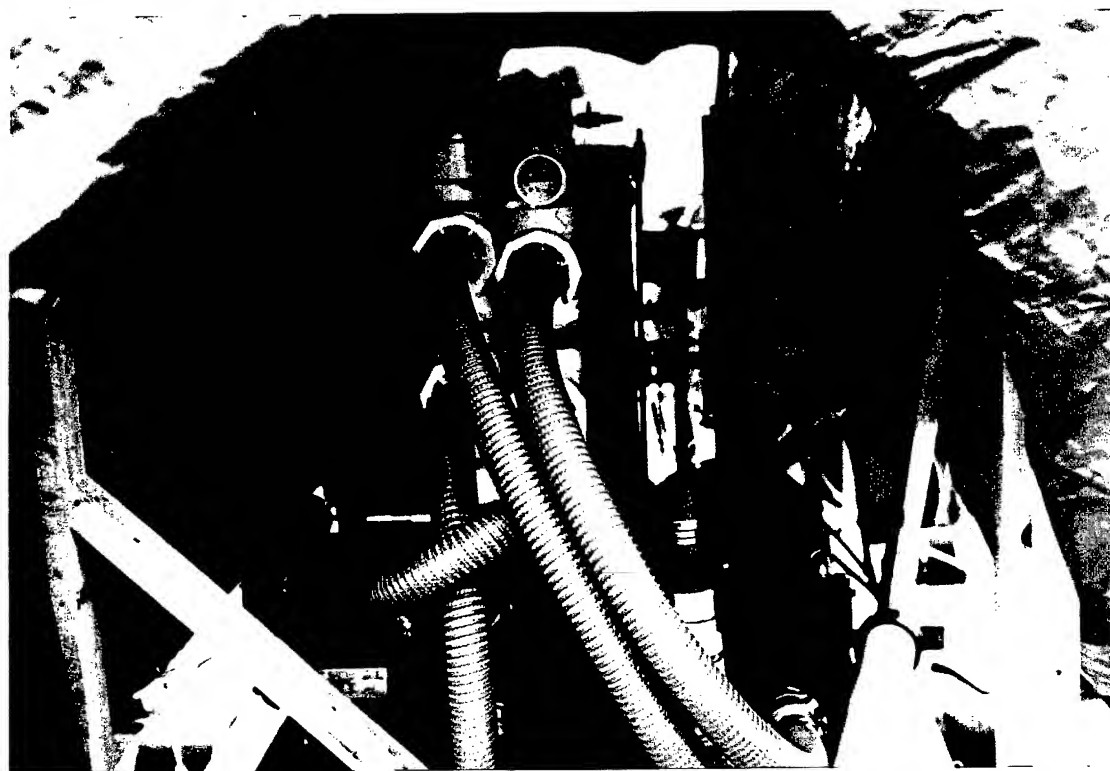


Photo 20: Vapor Extraction Header, Vacuum Blower, and Knock-out Tank

11-26-97



Photo 21: SVE and AS Trailer with Carbon Treatment System and Electrical Connection

11-26-97



Photo 22: Field Parameter Monitoring Equipment Set-up in Truck

12-5-97



Photo 23: Site SS-08 Location B (Hot Spot 3) with  
Ex. Groundwater Monitoring Wells H2S and H2D

5-21-97



Photo 24: Site SS-08B, at the NE Corner of Hangar Building 5063

5-21-97





Photo 25: Soil Vapor Monitoring Test in Progress  
(Field Measurements of Various Gases)

12-3-97



Photo 26: Groundwater Monitoring Test in Progress  
(Water Quality Indicator Parameter Measurement)

12-3-97



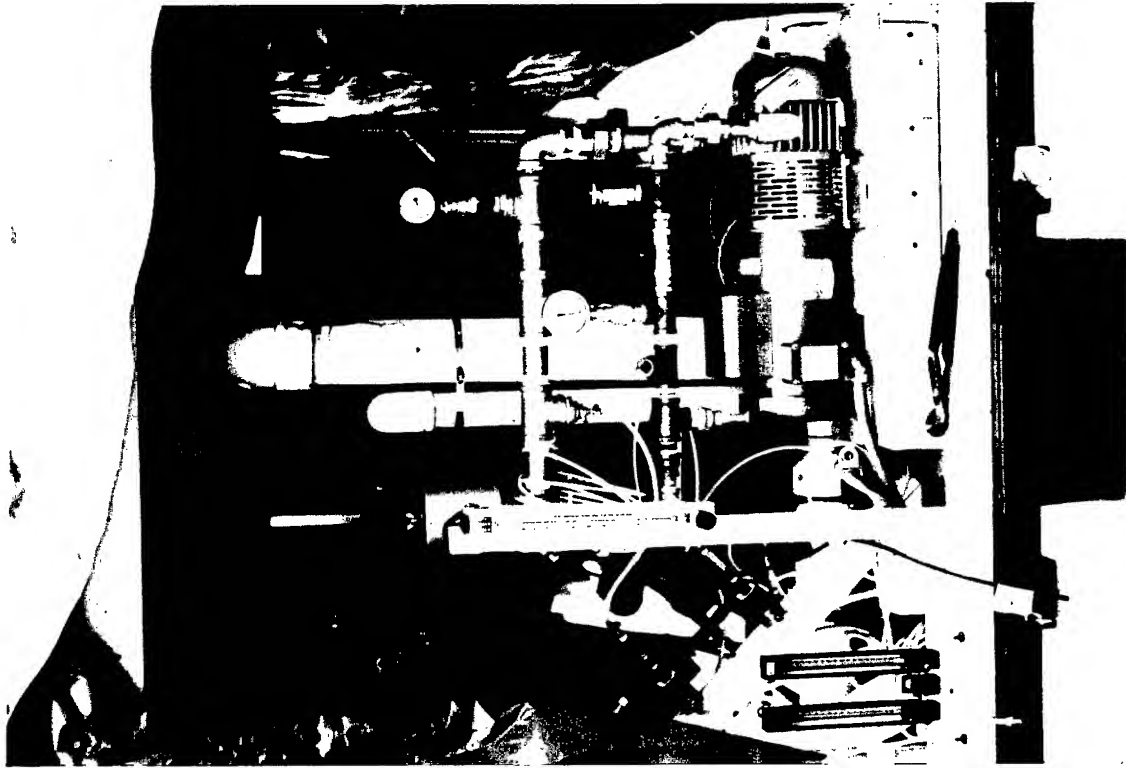


Photo 27: Air Sparging Test at SS-08B (See Solenoid Valve, Air Blower and Various Gauges) 12-5-97

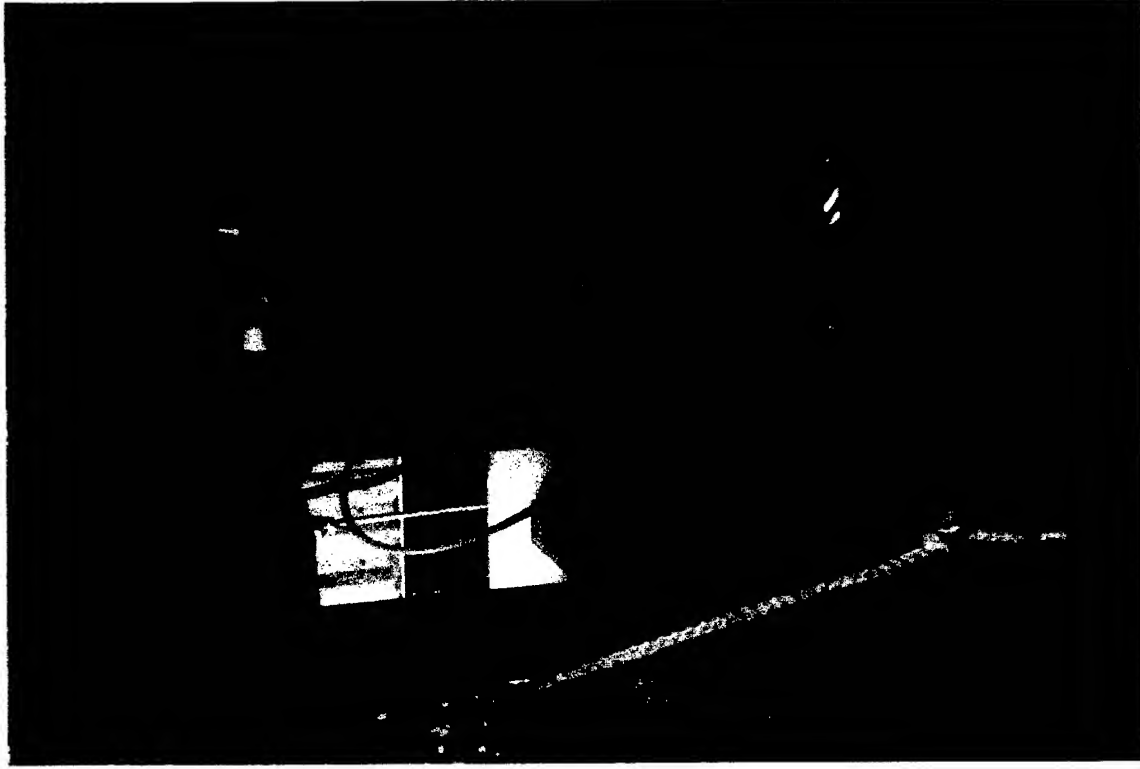


Photo 28: Helium and Sulfur Hexafluoride Flow Meters 12-5-97

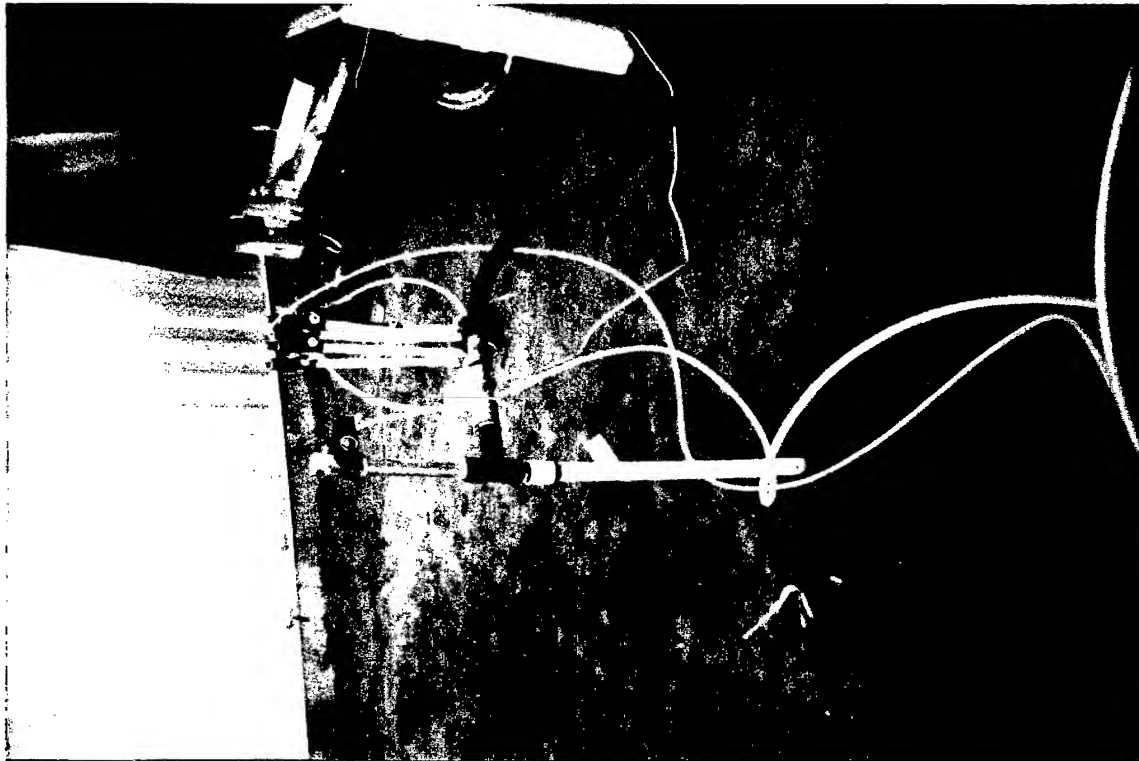


Photo 29: Site SS-08B Sparge Well and MP1 Well Cluster  
Air Sparging in Progress (On and Off Cycle) 12-5-97

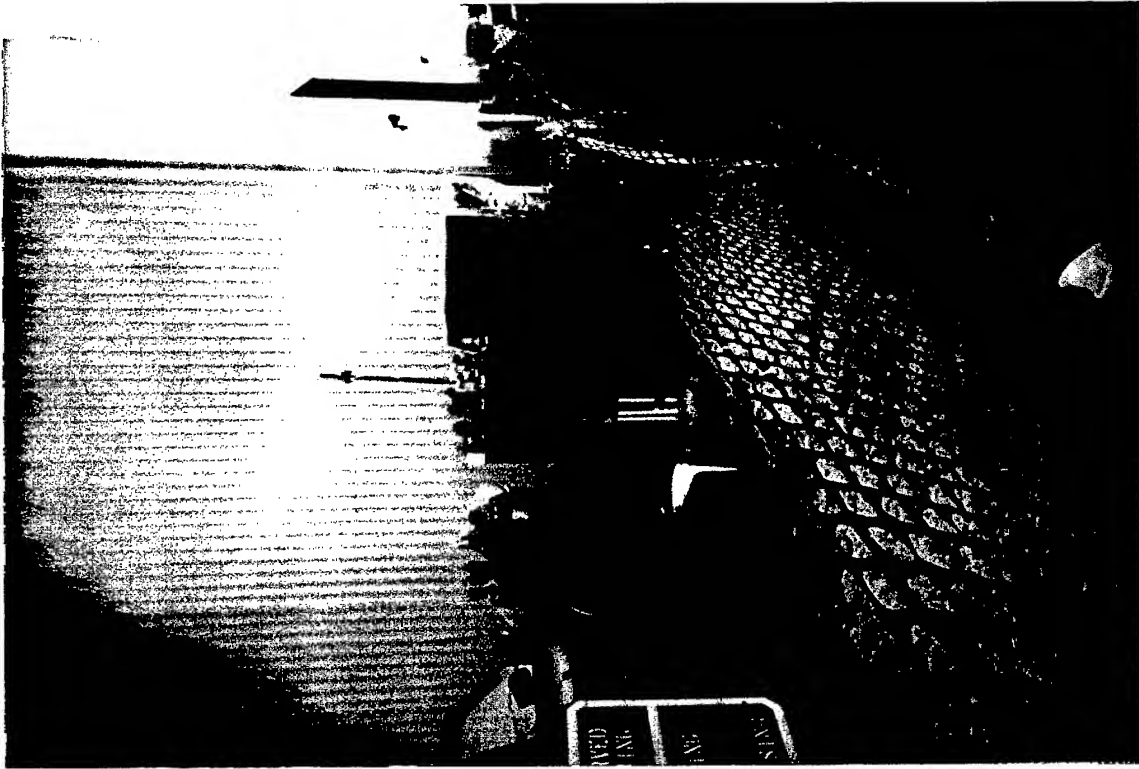


Photo 30: Trailer, He & SF6 Gas Cylinders and  
MP3 Well Cluster 12-5-97

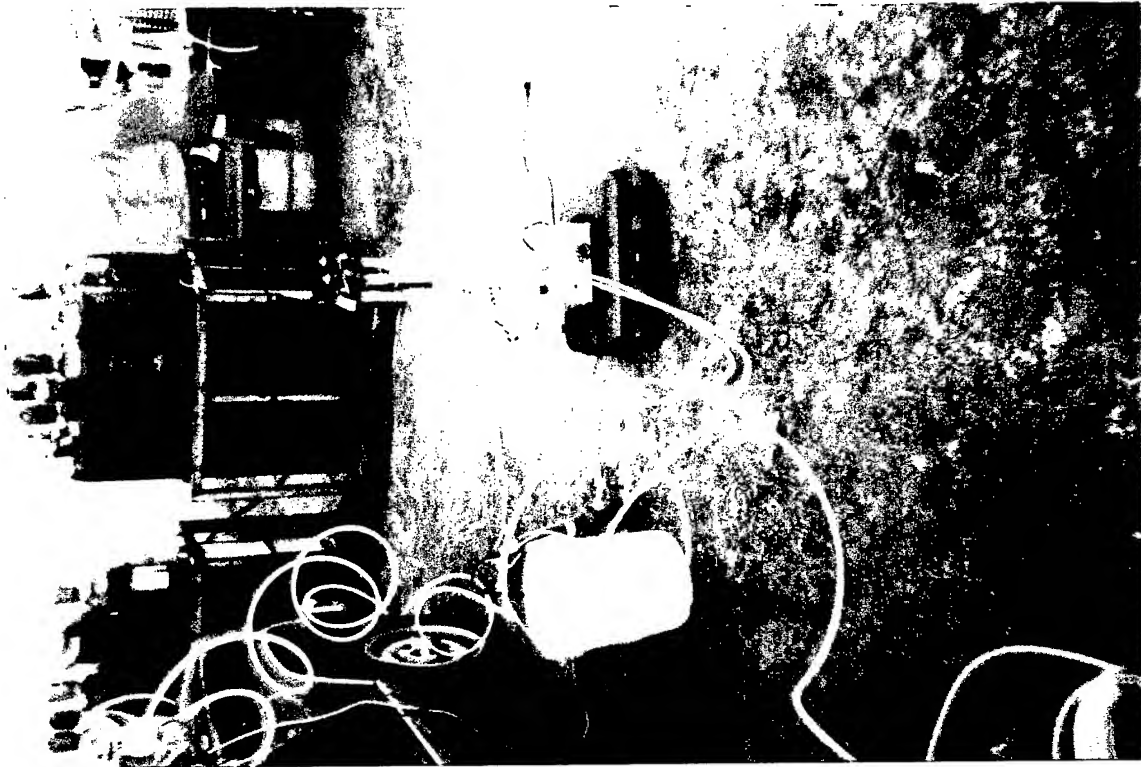


Photo 31: Groundwater Sampling Pump and Flow Cell 12-5-97

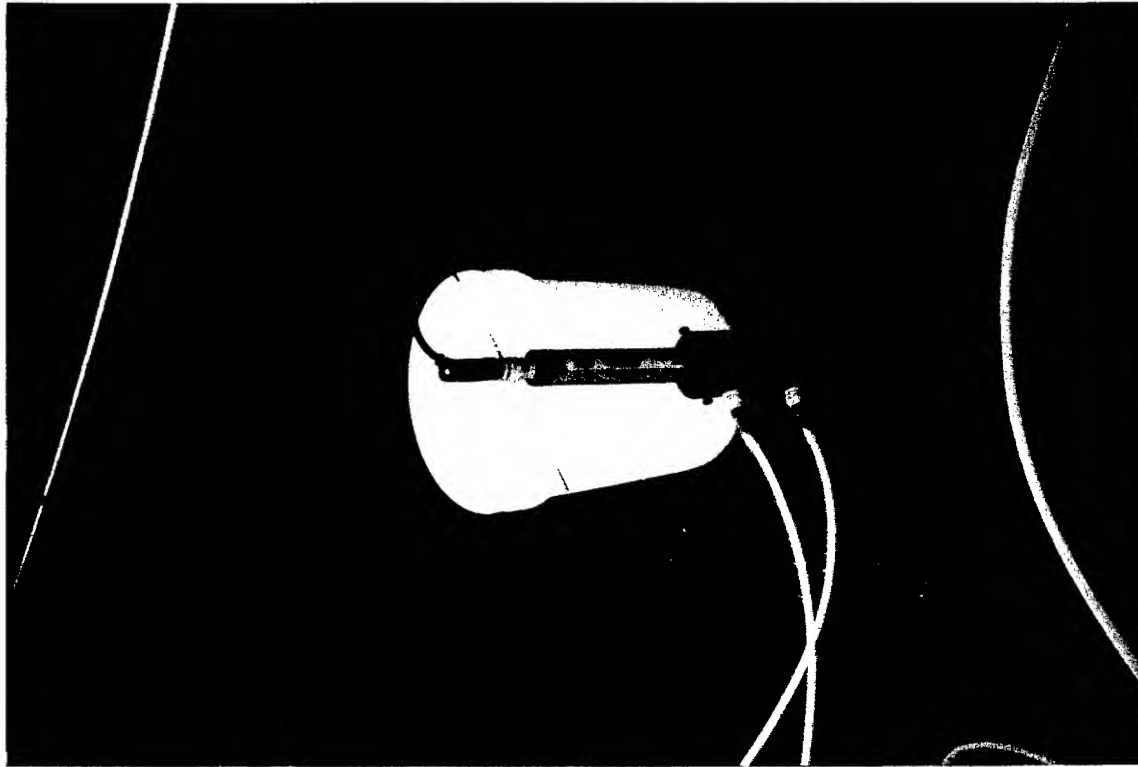


Photo 32: YSI Flow Cell with Tubing Connections 12-5-97

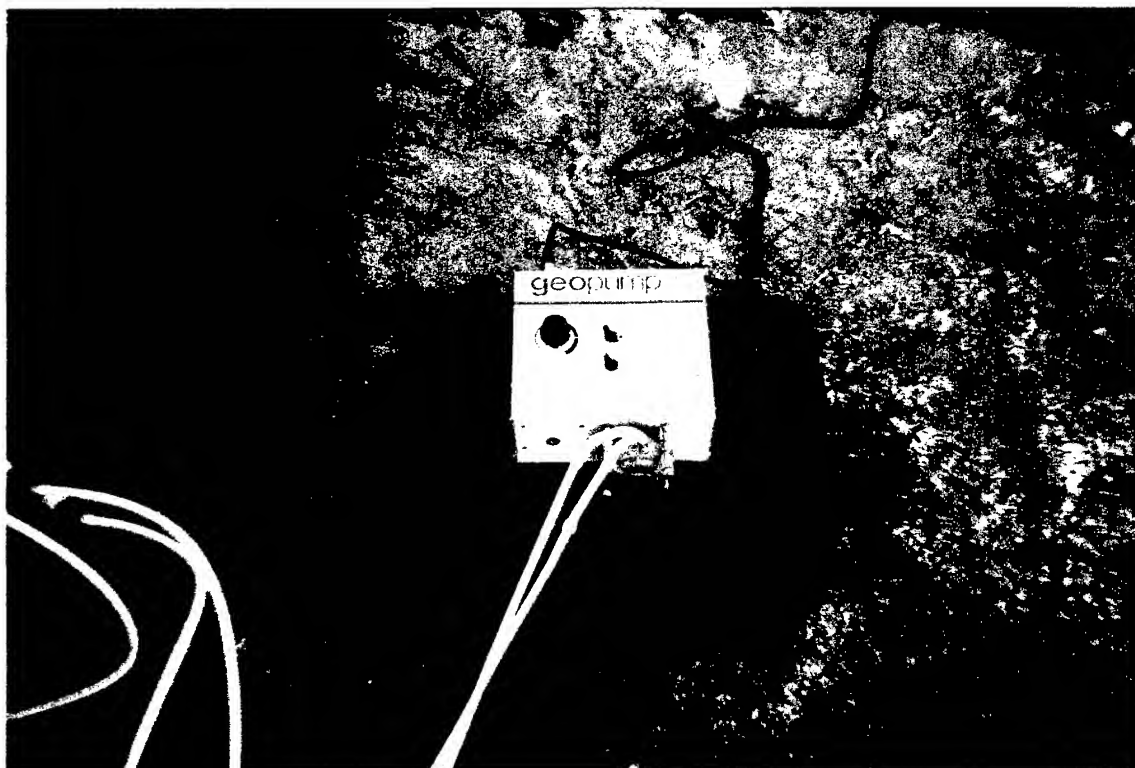


Photo 33: Peristaltic Groundwater Sampling Pump

12-5-97



Photo 34: Drummed Soil Cuttings from Site SS-08B, Moved and Stockpiled at 5092 (Sunrise Behind Wurtsmith Tower)

12-4-97